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VICK'S MAGAZINE

MONTHLY



MARCH, 1900.

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K.I.A.

Elberta Peach

VICK'S ILLUSTRATED MAGAZINE

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NOTES FROM A PEACH ORCHARD.

IN THE northern part of Monroe county, N. Y., three miles from Morton and one-half mile from the shore of Lake Ontario, there is a ridge of land about one mile long and one-half mile wide on which the cultivation of peaches has been so successful that it is known as the "Peach Belt." The soil on this ridge is sandy and naturally well drained, the latter a prime necessity in the cultivation of peaches, even to the sub-soil. Several large orchards are located on this ridge, and from the owner of one of the finest of them, Mr. James Austin, the following notes were obtained.

The orchard in question was started about fourteen years ago by setting out 500 Early Crawfords. Now there are about 4000 trees in the orchard, one-half Early Crawfords and the rest later varieties. The first trees were planted 19 x 16½ feet apart, but 19 x 19 or 20 x 20 is the practice followed in the last few years. At first hoed crops were planted in the orchard but for the last ten years this has not been done; just the trees are grown, but cultivation of the soil is kept up almost to the time of picking.

Great quantities of fertilizer are used, chemicals exclusively. In order to have a pure article and to know more nearly what he is using, Mr. Austin procures the materials in bulk and does his own mixing. Muriate of potash, bone dust and acid rock (to get phosphoric acid) are the materials used, every other year changing from phosphate rock to bone dust. Nitrate of potash is also used, but not every year. Cover crops have been tried, but are not as satisfactory as keeping the soil stirred; it is a question if they do not take moisture which the trees need.

In trimming, the main idea for a number of years was to keep the trees low, but they will not be kept back. Now when the trees get to be ten or twelve years old and the tops cannot be reached with a ten-foot step ladder, the

whole top is cut off, the main branches being cut about two feet from the trunk and five feet from the ground. This makes a new top and the trees bear again the second year. Only a part of the orchard, of course, is treated in this way at one time. Trimming is usually begun the first of March.

A few years ago a warning came from the California coast to look out for the curl-leaf, and close upon the warning came the trouble. The Early Crawfords are not subject to this disease, but later varieties are. Spraying should be done twice before the foliage starts. The leaves of peach trees are more tender than those of the apple and will not stand spraying.

Twice a year the trees are looked over for borers and the bark scraped. The practice is to keep the earth heaped up around the trees. In scraping the bark a peculiar sound will sometimes be noted, indicating the presence of the borer, although it is often found at some distance from this point; remove the dirt and dig out the borer, replacing the earth again. Digging them out is the most effectual remedy; applications may kill the borers, but they are apt to kill the trees as well.

Climbing cut worms sometimes cause great havoc in young orchards. They work entirely in the night and for this reason are hard to combat; the best remedy yet found is to make a ring in the earth close around the young trees and in this put a mixture of bran, Paris green and molasses.

If a tree bears premature fruit, it is taken out and another tree planted in its place. There has been a question as to the advisability of doing this, but Mr. Austin has never yet seen any bad effects in the second planting. As soon as trees show signs of decay they are taken out. It will be seen that eternal vigilance in peach-raising, as in nearly everything now-a-days, is the price of a crop.

The market calls for a round peach and the Early Crawford meets this demand; this variety comes, too, when people want peaches to eat. Three or four later varieties, including the Elberta, Smock, Stump and Crosby help make up the orchard. Early Crawfords come into bearing the fifth year; later varieties bear sooner. The Elberta is one of the best varieties for shipping on account of its tough skin. It comes close after the Early Crawfords.

The Crosby is almost too prolific, requiring thinning, which is a great expense.

The first shipment of Early Crawfords last season was on August 24th, which was the earliest ever made. The latest shipment of peaches was of Smock on October 10th. In all, about 12,000 baskets were shipped from this orchard last year. There is a steady demand for the fruit, for every basket shows the honesty of the grower. The peaches are carefully sorted, without handling, and firsts are always first-class; no baskets with fine large peaches on top and small ones in the middle go from this orchard.

Mr. Austin's advice is, that unless soil is suitable it is better to keep out of the business of peach-growing. Peach trees will not live long on unsuitable soil. An orchard planted only seven years ago on heavy soil, not over eighty rods from this "peach belt," is now entirely dead, while one planted twenty-seven years ago on this ridge is very vigorous and still bearing finely.

A more beautiful sight than Mr. Austin's orchard when laden with ripening fruit cannot be imagined. The almost uniform size of the bearing trees, their healthy foliage, and the contrasting beauty of the peaches, make a picture which lingers long in one's memory.

F. B.

* *

FLOWERS IN THE WEST.

MANY families living in western Nebraska believe it a settled fact that flowers cannot be grown successfully in this climatic condition which nature has given to us. In our continual residence of over thirteen years I find that "where there is a will there is a way," possibly not the way we use to do "back east," but a way, nevertheless, that gives just as gratifying results. First, the old idea that tall growing flowers should not be planted on account of the high winds: dahlias, gladioli, tuberoses, *Hyacinthus candicans*, etc., would

be out of the question. I have raised all of the above named plants and many more, to perfection and never yet had them blown away or broken off.

Nature seems to adapt herself to surroundings, and while the dahlias do not grow as tall here as they do in the east, the bushes are more compact, and are completely covered with bud and blossom that are perfect in form and color. "Ethel Vick" is a complete success and a beauty.

I plant the tubers out in the open ground in April, in a well prepared bed about ten inches deep, cover about four or five inches deep and fill up as the plants grow. Tuberoses are not planted out until the latter part of May; they are then treated as the rest of the house plants that are potted out at that time.

Annuals with large seed are planted the same as anywhere else, where such things are expected to grow. The small seeded varieties are planted in the hotbed or boxes and can be transplanted without much labor or loss. I keep the young plants covered with small pieces of paper held in place with dirt, until growth has commenced.

Nearly every family in the extreme west have gone into the poultry business, and under the prevailing condition flowers cannot be grown in the door-yard, but they can be grown nicely in the vegetable garden, and if a little thought and care is exercised they can be cultivated by the men when they cultivate the vegetables; and every member of the family will feel better when they see those blossoms, and others will learn to go and do likewise.

Nebraska.

A. H.

* *

SEQUOIA.

Lofty above hot stretches of the plain,
Above the sea, and beetling cliff, lone sage!
Thou dwellest in hesternal heritage,
And wisely countest life enduring gain.
A sarn thou art to us, a wondrous chain,
Out-reaching far from Earth's archaic page;
An only pilgrim from stark glacial age,
Or heirloom rescued from Atlantis's reign.
Noble thy column stands, thy crest unbowed,
In spaces where the holy organs peal,
And where eternal harmonies are rife.
O would that I might rise above the cloud,
Like thee! Above the moil, unto the weal,
And nobly use my puny lease of life.

MARY H. COATES.

California.



From plant in Orchid House of Mrs. Laura M. Kimball, Rochester, N. Y.

VANDA LOWII.

MANY peculiarities that are not only very odd, but also beautiful, are found in the plants of the various species of the orchid family.

On taking up for study the Vanda family we find species with small and delicate bloom and others ranging in size to that of the great pendulous spikes of Vanda Lowii. Compare the great Vanda Batemanni, tall, erect, with its large spike of bloom trying to outgrow all others, with Vanda Lowii drooping six to eight feet to the ground, and what a fine contrast of plant formation is presented!

The remarkable colors seen in Vanda Lowii, the rich chocolate, velvet spots on a ground of gold astonish those who first see the plant

in bloom, and one never ceases to admire it. Well may orchid enthusiasts say Vanda Lowii is the wonder of them all.

This species, though in gardening circles still called a Vanda, has in recent years been separated by botanists from the genus Vanda and placed in that of Arachnanthe, a genus comprising only about a half dozen species. The name, *arachnanthe*, means a spider flower, the allusion being to the form of the flower. The species of both Arachnanthe and Vanda are natives of the Malayan archipelago, the species under consideration having its home in the island of Borneo where it grows on the trees. In cultivation this plant requires a warm and moist atmosphere. COLIN OGSTON.

WILDINGS OF OREGON.

Highland Flowers.

PLEASE bear in mind that this is a region of long dry summers, where for months there isn't even a fall of dew to moisten the vegetation. In spring when the chinook melts the snow, the bunch grass is already brightening the hill-sides, having grown under the snow. This fine fragrant grass grows in tufts or bunches; hence the name. It is so loved by the stock that nothing can take its place. In midsummer the tall clumps dry and turn a golden brown, retaining strength and sweetness, and furnishing good food in abundance for the range cattle and horses.



AN OREGON ERYTHRONIUM

Here and there a clump of gray sage-brush shows against the brown earth, and if one were to look closer, tiny plants would be seen that will furnish unexpected beauty later on. The buttercups are first, and they often bloom close to the edge of a belated snowdrift. Indeed, they are often covered deeply by March snows, as they usually begin blooming in February and are gone by the middle of

April. They stay long enough, however, to greet the dodecatheon, that, blooming from April 1st to the middle of May, is as pretty as cyclamen, and much the same in form, texture and colors, coming from pure white with yellow eye, through shades of blush and pink, to bright carmine.



BABY FEET

With these come erythronium, with modest, drooping, golden yellow bells, and an airy, graceful bloomer that the children call "baby feet." The last has small deeply cut foliage, and long tough stems. It is white in shade, delicately pink in sunshine. It grows from a tiny pink bulb and is lovely and lasting in bouquets. I can not find its name, but it is cultivated easily and blooms until late in the season.

May brings in the yellow violet, (*Viola Douglassi*) in great profusion. It is scentless but very pretty. The sward, in damp places is purple and white with lobelias, and in other places pink with tiny phlox-shaped blossoms on a plant that would look over potted in an ordinary thimble. Rich blue larkspur, wild phlox from pink to blush white, blue and white lupine, and many others, are also children of the May, though some of the phloxes bloom till frost.

June brings us its millions of roses, from deepest ruby crimson to palest pink. On the hills, growing out of masses of loose rock is a silky pink flower, shaped somewhat like a Mexican primrose. Its short stem springs from a rosette of succulent cylindrical foliage, about two inches long. It is a species of cactus, called by the people, Rock Rose.* Here, too, in the hot dry rocks grow great beds of wild onion, with flat prostrate foliage, and blossoms much like those of the cultivated varieties. The bulbs, too, are similar in form and taste, and by some are cooked the same as garden onions. I never saw one over an inch in diameter. Here also in the rocks are great patches of golden yellow daisy-like, fragrant flowers with gray-green foliage.

These gray ugly masses and streaks of rocks abound in small ferns in early spring, and in June and July are purple and yellow with the blossoms of "couse," the Indian name for

*Undoubtedly *Lewisia rediviva*. Not a cactus.—ED.

Ligusticum apiifolium. The yellow variety smells and tastes like celery, and where the crisp thick stems are blanched by the rocks, in which they are often buried a foot or more, they are not a bad substitute for that relish. The root is bulbous, and when the Indians go to the Columbia for salmon, their women gather and dry these roots and pound them to a powder of which they make a kind of bread in winter. They say the purple variety is poisonous. Perpendicular walls of rock are covered with emerald moss, studded with yellow sedums, and draped with the beautiful white clematis, (*C. brevifolia*), which in July is white with its feathery panicles of fragrant bloom, and in October is again white with the fluffy "cotton" of its seeds. With this is often found the wild syringa with its lovely white orange-scented blooms, that are open at the same time the clematis blossoms. Also the waxen "snowberry," a small shrub with tiny pink blooms in spring and shining white berries in fall and winter.

In July the *calochortus*, from purple to lavender, perches on its leafless stems, over the brown prairies; fields are pink with *clarkia* or white with wild tansy.

The *allium* blooms freely in enormous clusters in moist places, and sparingly on the ridges. It seems to me identical with *Allium neapolitanum*, and I have potted some bulbs to try if they may be forced for winter bloom.

In the woods, on mountain sides, the dead branches of fir and pine are clothed with yellow green lichen. Tall red flowered honeysuckles clamber over tall trees, scarlet *aquilegia* mingles with great ferns, and in spring a large beautiful yellow *erythronium* stars the woodland. EMMA B. FRENCH.

Oregon.

* * *

STARTING PLANTS.—The wideawake amateur gardener will not let the present month slip by without earnest effort to start seeds and plants that need to be brought along before planting-out time. What to do depends on locality; in milder regions, the coldframe will be employed; where colder, a hotbed, or a box of soil in the window.

PLACES OF INTEREST NEAR HOME.

IT is delightful to travel; it is pleasant to go to the seashore or to the mountains to spend the summer. But there are resources within one's reach at home, and in these days of frequent and cheap excursions everyone can make occasional pleasure trips, even if only for a day. Much may be crowded into a single day's journey.

The accompanying photograph of Cantwell Cliffs shows a picturesque spot which we



South-east Ohio

CANTWELL CLIFFS

visited one day last summer. They are about midway between two railroad stations—Rock Bridge and Enterprise—on the Hocking Valley Railroad. We stopped at Rock Bridge, and took a carriage to the cliffs, planning to visit the real Rock Bridge, from which the station took its name, on our return.

The day was a delightful one, and the drive up and down the hills for which Hocking county is noted, was charming. One feature which added to the picturesqueness of the landscape was the high derricks of the natural

gas wells, and our communicative driver contributed to our pleasure by his lucid explanations of the method of working the wells, etc. After driving several miles, we stopped at the brow of a hill, and with collecting boxes, camera and lunch basket, started to walk 'across the field' to the cliffs. The field would have seemed a long one had not the dewberries grown there in great abundance, ripe and luscious at this time; as it was, we were a long time in crossing the field.



Near Rock-Bridge Station, Ohio NATURAL ROCK BRIDGE

When we reached the cliffs we were more than delighted that we had come, for the whole scene was charming. The perpendicular cliffs, nearly a hundred feet high, stand there, nature's monuments of her work, telling the story of the changes wrought by erosion in the long ago. The little stream that plays there now is but a small tributary of the Hocking River; it serves, however, to complete the beauty of the cliffs, and renders the atmosphere what the ferns and mosses revel in. Very many varieties of ferns grow here luxuriantly and in great abundance. We could not resist the temptation to fill the lunch basket with ferns to bring back home with us.

and our home decorations seemed lavish for months afterwards in consequence.

Under a projecting ledge of rock, kept moist by the trickling water, was found *Sullivantia*, a rare and charming little plant, which only grows in such localities. It was collected by Sullivant, the famous bryologist, of Columbus, Ohio, and named in his honor. The *liriodendron* or tulip tree, the *oxydendron*, sorrel or sour gum, *kalmia*, or mountain laurel, *rhododendron*, etc., are all at home in this charming region. Here also the twinberry, *Mitchella repens*, and wintergreen are bright the year round.

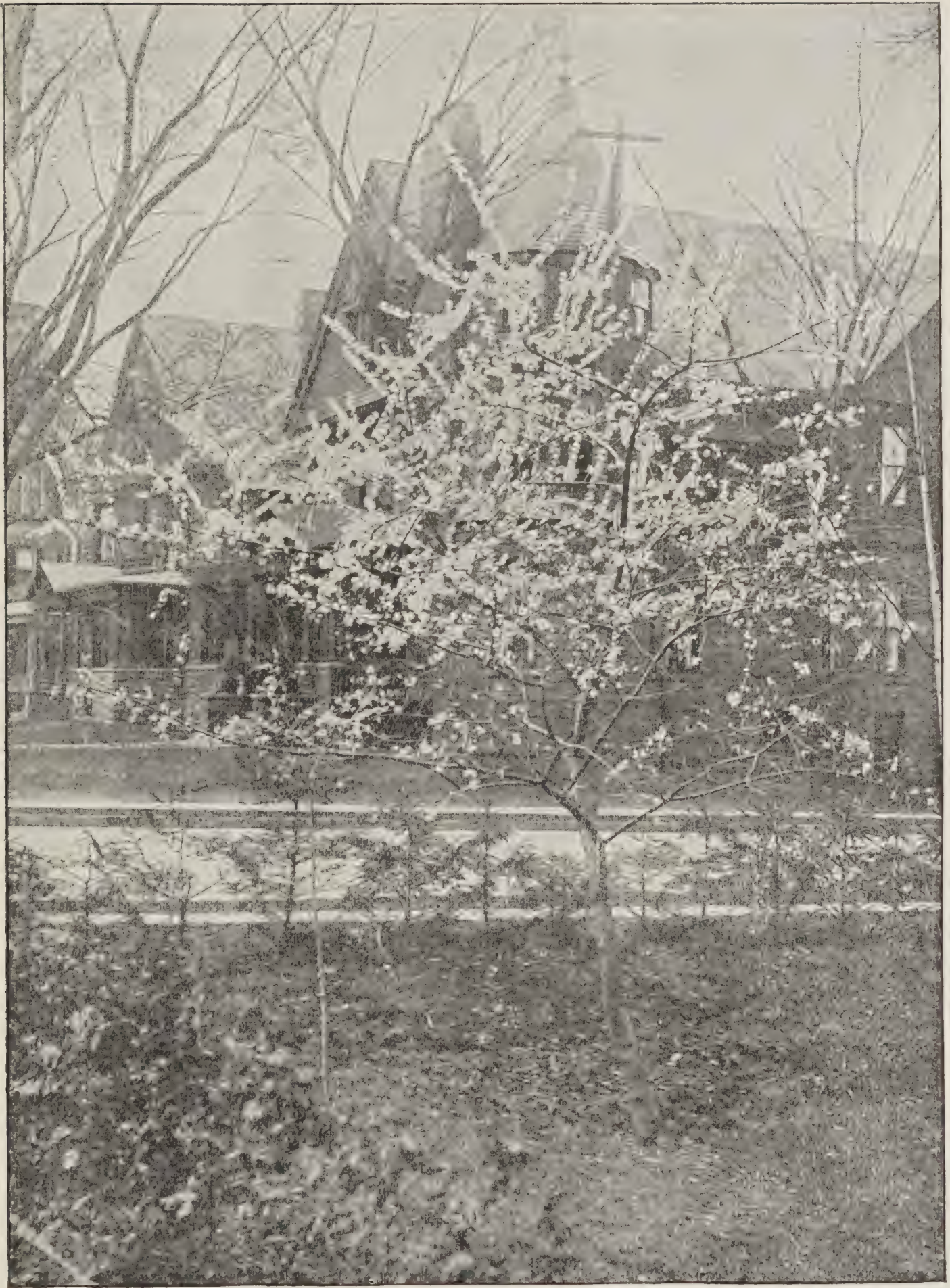
But the day was waning, and we must hurry back to our carriage in order to make a flying visit to the Rock Bridge. We found this bridge quite worthy of its name. It is about fifty feet long, some twelve to fifteen feet wide, and fully thirty or forty feet high. The photograph is taken from below or back under the bridge, from a cave-like place. Not having a wide-angled lens, only a small portion of the bridge could be taken, but enough is shown to give one a fair idea of this striking bridge of nature's building.

We left home about 6 A. M.; enjoyed the day to the utmost; traveled about a hundred miles, were home again by 8 P. M., laden with interesting treasures, ferns, mosses, lichens, etc. Besides the pleasure of a day thus spent, there is always the opportunity of bringing some plant for the home wild-garden. There are so many wild flowers worthy of transplanting, that one only needs to see them in their native haunts to be imbued with a desire to grow them

in the garden. MRS. W. A. KELLERMAN.
Ohio.

* *

ROSE PRUNING.—In the Middle South rose pruning will demand attention in the early part of the present month, and further north later in the month, while in the more northern country April may be quite early enough—all depends on the season. Pruning should be done before the buds begin to push, if possible. To get hybrid perpetual roses of good size it is necessary to prune short, so there may be a growth of strong shoots. Leaving last year's canes long will result in a mass of bloom of medium sized and small flowers.



PRUNUS DAVIDIANA.

PRUNUS Davidiana, *Armeniaca D.*, *Persica D.* of different authors. A Chinese tree of the plum or apricot tribe, very interesting and attractive when in bloom. It is quite hardy here. As an ornamental tree it claims atten-

tion on account of being the earliest to bloom — even while other trees are leafless and before the native Shadblow. Flowers pink. Engraving shows a tree at corner of East avenue and Upton Park, in this city.

DAHLIAS; SELECT VARIETIES; POINTS ON GROWING THEM.

THE dahlia not only steadily maintains its hold upon public favor, but continues to grow in popularity, simply because no other flower more fully meets the growing fancy for free and natural effects in gardening. For bold and massive grouping, for brilliant relief of somber background of evergreen or flowerless shrub, or for lighting up the border, it is unsurpassed. In truth, few flowers approach it in its rich diversity of coloring.

Some very elegant and distinctive dahlias have been introduced of late. Clifford W. Bruton has proved a mammoth, both in height of plant and in size of flower. It ranks first of all I have ever grown for stately background effect. Its flowers are five and six inches across, with petals beautifully pointed, and full to the very center; its color the purest, richest lemon-yellow I have ever seen. It is an early and continuous bloomer. I have a wealth of its tubers, and a welcome place in my grounds for every one.

William Agnew proved true to the florist's description. "The grandest red, Cactus dahlia ever produced." It is a strong grower, yielding a never ending supply of magnificent flowers, full to the center, with petals whirled and twisted in the most artistic arrangement, and the most intense shade of vivid, velvety crimson; fine for striking decorative effect.

Henry Patrick ranks as the best pure white Cactus dahlia. Its flowers are large, with heavy, waxen petals, and borne on extra long stems, making it superb for cutting. It blooms continually from June until frost, yielding a profuse supply of its exquisite, pearly white flowers, so perfect as never to show a trace of the center.

In striking contrast to the last is Zulu, a low grower, but broadly branching and very floriferous; yielding an abundance of its rich, velvety flowers of a maroon so intense as to be almost blue-black in the distance. Unequalled for harmonious or contrasting grouping, as you choose to call it, for it is at home beside any color your fancy may suggest.

Constancy is not so distinctive, but yields a profusion of finely-poised, perfect flowers of a rich orange-scarlet.

Nymphæa, the pink water-lily dahlia, is truly a gem among dahlias. It is preëminently a plant to withstand drouth; an exceptionally strong grower, its main stalk of immense size,

and its broad branches covered all summer with flowers of exceeding delicacy both in coloring and construction—pearly pink with a center of deep, rich cream, and its petals beautifully pointed. It is exquisite for corsage wear, or for bouquets, and most artistic in baskets with no greenery save that of delicate fern fronds. One planted in a southeast angle of the house, completely filled the space, and was so top-heavy that it required lashing to both sides and angle to prevent its being ruined by the wind, even in its sheltered location. A clump of the plants formed a young forest in which pearl-pink formed the "highlights." With an eye for delicate coloring, this dahlia is my especial favorite.

Grand Duke Alexis easily follows, a royal flower; its pearly petals faintly tipped with peachy-pink are incurved.

William Pierce is rich and effective, a deep, golden yellow.

Miss Bennett is both choice and rare, in rich hue of glistening salmon.

Iridescent is unique, and up to date in changeable, silken sheen.

Maid of Kent is inconstant as the chameleon in her display of color. Here a petal wholly white, its neighbor only partly so, while many are dyed in crimson, deepening into dark maroon. All lovers of the unique will fancy the fickle Maid of Kent.

Most beautiful among Show dahlias are Ethel Vick, softest, purest, sea-shell pink; James G. Blaine, richest velvety crimson; Ronald, buff, free and fine. As to both form and coloring, it is unsurpassed—a sort of pinkish salmon, overlaid with buff, if this describes it. It is most artistic and striking grouped with the crimsons or the Zulus. Other highly prized varieties are, Miss Champion, Baron Schröder, Prince Bismarck, Emily, Bird of Passage, and Show Dahlia, Constancy. Countess of Radnor is but a synonym for the sunset's matchless hues. Those who like bizarre effects will find them in Startler, Oriole, Burning Coal and Admiration.

In favored localities, dahlia tubers may be planted in the open ground as soon as the weather becomes warm and settled. Cover the stem about three inches deep, and when shoots start, thin out to one or two of the strongest. I have always practiced leaving but one strong sprout, but last summer's experience changed my views somewhat.

The dahlia borer has, as a rule, heretofore attacked side branches first, making it an easy matter to dislodge him as soon as wilting of the leaves betrayed his location. Last summer he adopted strategic movements very early in the season, attacking the main stem which holds so much substance and moisture that his wormship's presence was not betrayed by wilting of the leaves, until the damage was too great to be repaired.

Later on, when by close watching I discovered him, the plant-surgery, incident to his removal earlier in the campaign, rendered some of the finest specimens of little further value. Some had sent out branches in pairs close to the ground, and when the point of entrance was above these, the plant was simply cut off below this point, and in a month's time, the two branches gradually drawn together and secured to a stake as they grew, formed handsome blooming plants. A few tubers had been permitted to grow two sprouts from the first when they evinced a lack of sturdiness, and where one of these was attacked, it was promptly removed, still leaving a fine plant which soon grew symmetrical with a little care in tying a branch or two. I shall adopt this plan for next season at least.

Tubers started by the middle of April, last spring — a cold rainy spring — were in bloom in early June. Rich soil, with plenty of room and moisture are all they ask. In the fall, before heavy frosts, cut off the tops three inches above the ground, dig the tubers with all the soil that clings to them, and place, labeled, in boxes. Let them dry two or three days in the shade, fill up the boxes with loose dry soil and store in a dry, frost-proof cellar.

In buying tubers give preference to those that are pot-grown, as they require little space while sprouting. I have had but two good



Scotch Pine

PINUS SYLVESTRIS

sprouts frequently from a tuber as large as a mammoth sweet potato, and last year I grew four magnificent Zulus from one pot-grown tuber no larger than a walnut.

MRS. A. H. HAZLETT.

* * *

THE SCOTCH PINE.

THIS tree, notwithstanding its common name, is a native of the greater part of the European continent, especially in the mountainous regions. Whether it really is a native of Scotland is a question that has never been decided. If introduced there it must have been long centuries ago, for it flourishes, apparently as a native, in most parts of

Scotland. The engraving represents trees growing on the grounds at Castle Grant, Strathspey, Scotland. The Scotch pine is the great pine lumber tree of Europe. It is a very rapid grower, and is said to attain its greatest size and perfection in the Pyrenees and the Tyrolian, Swiss and Vosgian mountains, many specimens reaching a height of eighty feet, and more, and a diameter of four or five feet. The largest of these trees ever cut down in Scotland is said to be one that stood in the forest of Glenmore, and which was called the Lady of the Glen. From this was cut a plank which stood in the entrance hall of Gordon Castle, and was six feet and two inches in length and five feet five inches in breadth. On account of its rapid growth, together with great hardiness and other good qualities, the Scotch pine has been a favorite in this country for planting on the prairies of the west. It makes an efficient wind-break in a very few years. It is easily and cheaply raised from seed. It is also planted considerably in this country in parks and large private grounds. It appears to lose its symmetrical form in a few years, and as an ornamental tree, standing singly, is not so desirable as some other species, but for planting in masses it has valuable qualifications.

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FERTILIZING THE GARDEN.

WHEN the garden has been cleared from crops, one subject to which the gardener must give his attention, is the supply of plant food with which to grow the next year's produce. It is a subject which he should study very closely, for on the right use of fertilizers will depend his success, to a large extent. One should know the needs of the soil, so that fertilizers may be used in the most economical way. If it is deficient in humus, it will be necessary to apply plant food in the form of stable manure, or plow under cover crops. If the soil has been heavily manured for several years, and is full of humus, it may be more economical to grow some crops with commercial fertilizers; or if the soil has become "manure sick," or acid, it may need an application of lime.

On my own farm my plan is to apply stable manure to the land where I intend to raise celery, cabbages, and other vegetables of which the stem or leaf is the edible part. Part of this manure is first applied as mulch on the strawberries, and after getting this use of the manure, there is time after picking the

strawberries, in June, to raise a crop of celery or cabbages. There seems to be a difference in manures and fertilizers in regard to their availability for different plants.

Most of the garden vegetables seem to assimilate food better in the form of stable manure, and the vegetable matter in it furnishes the humus to the soil that enables it to retain moisture. Sometimes in growing strawberries, where stable manure may seed the ground to weeds, it is more economical to use commercial fertilizers. I think I shall use no more stable manure on the strawberry beds, except for a mulch on those beds which I intend to plow up the next year. The field that is to be set to strawberries next year, I shall give a heavy dressing of wood ashes, and then scatter some commercial fertilizer along the rows after setting the plants. I plant strawberries, and some other fruits, on land that was heavily manured for vegetables the previous year, and as the soil is well filled with humus, it will need only the fertilizers mentioned. It is good economy to rotate manures and crops in this way, especially if stable manure is not easily obtained.

I have land that is failing to produce good crops, although it has been heavily manured for several years. This land has become acid, and will be dressed with lime. When soils become acid, or "manure sick", lime should be used to correct this condition. Usually it is the most economical to use lime in the form of caustic lime or quicklime. This can be drawn to the field, and placed in piles of about 50 pounds each, covered with earth, and allowed to slack, when it can be spread with a shovel. From one to two tons per acre once in three or four years is sufficient, unless the soil has become infested with the germs that cause the club-root in cabbages and cauliflowers. If one should wish to grow plants of the cabbage family frequently on the same ground, heavier and more frequent applications would be needed. Wood ashes contain from 30 to 40 per cent. of lime, and these if used in sufficient quantities, will take the place of quicklime.

W. H. JENKINS.

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SOWING VEGETABLE SEEDS.—Seeds should be sown in hotbed for early crops of cabbage, cauliflower and celery. Those intending to raise onions by transplanting young seedlings should sow the seed this month. Watch hotbeds carefully, ventilating on mild days.

COSMOS SULPHUREUS.

THE Giant Yellow Cosmos, which has also been called Klondyke, is the gayest of all gay flowers that bloom toward the close of summer and through the autumn in New Orleans. Strangers passing through the city and viewing the flowers from the car windows, have written to enquire, "what bright yellow flower is that, that makes New Orleans so gay in the fall?"

Cosmos sulphureus differs from the fern-leaved, earlier blooming kinds. The plants grow much larger, from five to ten feet, and the flowers are larger; also there is a marked difference in the foliage. The leaves are pinnatifid, but not so much skeletonized, nor like the fronds of a delicate fern as are those of the other lovely cosmos plants. From the seed the plant grows with the vigor of a common weed. The plants are remarkably free from disease, or attacks of insects, but are inclined to be top-heavy, and unless supported, are liable to be blown over by winds, or weighted to one side by heavy rains. Trained on a wire fence, the side of an arbor, the angle of a house-wall and porch, the branches can be spread out and trained along these supports so that the sheets, wreaths and cascades of bright, yellow star-flowers literally cover them from August till the close of November. A few light frosts do not hurt them; it takes a heavy frost to cut off the blooms, and lay low the plants.

One peculiarity of the cosmos is that aerial roots form on the under side of the lower branches, and if the branches are cut off and potted in light, moist soil, they will continue in bloom, indoors, until after New Years. Such cuttings ought to be treated a good deal like cut flowers, by keeping the soil in the pot saturated and the branch sprayed with water.

Late blooming seems to prejudice our northern friends against this invaluable class of annuals, but New Orleans experts make the plants bloom early when so desired. Sow the seeds early and let the seedlings get stocky, by pinching off every terminal, and set each

one in a thumb pot. Set the thumb pots, after a good supply of roots have formed, into saucers of liquid fertilizer. The roots, through the opening in the bottom will drink the fertilizer and thrive on it; let the roots form and the plant get thoroughly root-bound. They get so thoroughly root-bound that in some cases the little pots are broken in pieces with the



COSMOS SULPHUREUS

trowel and plant and pieces are all turned into a wet puddle in the open border, early in the spring. At Audubon Park, the past spring, the cosmos plants were thus forced, and when not over a hand's length in height began blooming. The supply of liquid fertilizer given, in the saucer, should be regulated by the apparent effect. As soon as a plant looks yellowish, it must have no more of the fertilizer. Sickly, yellow hue indicates over feeding. The white, rose-color and other kinds of early cosmos are forced for early blooms, but *sulphureus* is allowed to bloom according to its own inclination, which is to brighten the close of

summer and to mingle with the belated flowers of autumn. It is specially prized as a late summer and autumn flower, contrasting exquisitely with asters, chrysanthemums and dahlias. It seeds freely, self-sows its seeds and comes up in volunteer plants every spring in southern gardens.

MRS. G. T. DRENNAN.

New Orleans, La.

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ROOT APHIDES OR LICE.

THESE insects feed on the roots of plants instead of on the foliage, and are exceedingly hard to combat, as they are out of sight and their work is not discovered until a great deal of damage has been done. Often the life of the plant is sapped before their presence is discovered, and there is then no remedy.

There are many species of this insect, some attacking the grape, others the apple and peach, while another is found on the roots of house plants; the latter usually confines its work to the roots of partially woody plants, such as geraniums and chrysanthemums.

A sure remedy for all varieties of this insect is hard to find, but there are several, each of which will answer for some particular kind.

Lye made from wood ashes has been recommended for use on the ground around affected plants, a member of the Missouri Horticultural society depending on it entirely for all hardy plants, vines, trees and shrubs.

Another remedy suitable for hardy plants is strong salt water, poured plentifully on the ground around the roots. Those which are more tender may have strong soap suds applied. This is especially useful for chrysanthemums as the soap suds is beneficial for them anyway, whether they are infested with the root aphides or not.

Bi-sulphide of carbon is also recommended, though it would prove too expensive for use on a large scale. It is applied in this way; one or more holes eight or ten inches deep are made near the roots of vines or trees, and an ounce or more of the bi-sulphide poured in. The opening should be covered at once, and the fumes of the drug, being heavier than air, will sink and permeate the soil for quite a distance. Care must be exercised in handling it, as it is very explosive if near a fire, and the fumes deadly if inhaled too long.

It has been ascertained that the insects do not like a rough soil to work in, and experiments have been made by mixing sharp sand

with the soil around the roots of susceptible plants and trees.

The European varieties of grapes are very susceptible to these pests, so much so that in some sections grape culture has been given up entirely. In France, some years ago the government offered a reward of 300,000 francs for a practical remedy for the pest, but so far as I know, the reward has never been called for. It was at this time that it was discovered that sandy soil was not agreeable to them, and so a vast area of sandy land on the coast of the Mediterranean which had been heretofore unused, was fitted up for grape culture, and a vineyard of luxurious vines grew by the aid of fertilizers where grass could hardly be coaxed to grow before.

This pest does not affect our American grape vines to any great extent, as they belong to a different race. Those raised on the Pacific coast are European varieties, and they often suffer from the pest; a few years ago many vineyards being entirely destroyed by it. There is however, one sure way out of the difficulty, which has already been a great help to growers of European grapes. They found that the American grapes were comparatively free from the insects so they procured many of the vines, and grafted them with their own varieties. This gave them a strong vigorous root, on which they could raise large crops.

These insects first puncture the rootlets, taking the sap, after which the roots swell, then rot. They then go to others on the same plant, keeping up the work until all the smaller roots are destroyed. Then they congregate in large numbers on the large roots, until after a short time the whole root system is destroyed, and the plant dies. The insects usually are of the color of the roots on which they feed, some being white, while others take on a gray or brown shade. Some of them go from plant to plant under ground, while a small proportion of them develop wings and fly to other places. They cannot go any great distance however, so they spread slowly, except when sent to different places on the roots of plants.

MARIAN MEADE.

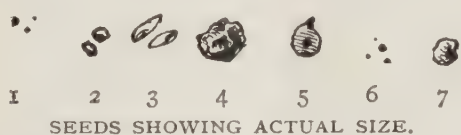
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PLANTING PEAS.—If the ground was prepared in the fall by digging or plowing it will be ready for use much earlier in the spring. The early smooth peas for the table and, also, sweet peas can be planted to advantage in many localities this month.

GREENHOUSE PLANTS FROM SEED.

IT seems a pity that so few attempt to grow greenhouse plants from seed. In no other way can so much be obtained for so little, a single packet, costing but a few cents, often giving plants by the dozen. Then there is the pleasure of watching plant life from its tiniest beginnings, and a sense of absolute proprietorship in the flower we have helped into life and loveliness. Once a grower of seedlings one is likely to become a veteran, yet there seems to be an impression that in the matter of house plants there is some cultural secret known only to the profession.

Hence the general public grows its own petunias and poppies and goes to the florist for its coleus as easily raised; pays its nickels for phlox and portulacca and its dollars for geraniums by the dozen that might be grown at home.



SEEDS SHOWING ACTUAL SIZE.

1—Tuberous Begonia. 2—Primula. 3—Geranium.
4—Lantana. 5—Abutilon. 6—Calceolaria. 7—Cyclamen.

Perhaps the tuberous begonia may have given the people a scare. Certain it is that the many minutely detailed directions for its culture from seed, current in the past decade, are little calculated to inspire confidence in a novice. Quite as certainly very many have failed with it.

NO SECRET.

There is no secret in growing seedling begonias other than painstaking care, but we may find consolation in these facts; first, that this is the hardest of all seedlings to succeed with, and second, that the tubers are now so cheap that no one need longer to grow them for financial reasons, though some may do so for pleasure. One household of my acquaintance finds it interesting to watch their development from the tiny, dust-like seed through a small microscope.

Next to the begonias in point of difficulty are, perhaps, calceolarias and gloxinias. I have succeeded very well indeed with all very fine seeds by the following method: Set some good garden soil in the oven until it becomes hot enough to kill all worms and weed seeds, and then put it through a sieve. Then take a small tin pan,—the clay pots dry too badly at the sides,—make three or four small holes in the bottom and put in half an inch or more of

fine gravel for drainage. Fill nearly full with the sifted soil, which after heating has been gently moistened, press down firmly, and sow the seeds thinly and evenly upon the surface. Do not cover with soil.

Some cover the seed-pan with a light of window glass, but I have found the seed to mould for me almost invariably in this way, so I lay two sticks across the pan and lay a paper lightly upon these. This admits air and keeps out the light. Seeds germinate best in the dark.

Set the pan in a warm place and keep watch. When water is needed set in a shallow dish of warm water and it will be absorbed through the holes in the bottom. When signs of life appear give light but not sun until all are well up. Some plants, as begonias, primroses, etc., do better if given but little strong sunlight.

The larger seeds, as geranium, lantana, abutilon, etc., do not require the soil to be sifted, but for any it should be light, loose and free from lumps, weed seed and larvæ.

TRANSPLANTING.

The plantlets may be transplanted, if desired, when the second leaf is well started, but unless they crowd, they may as well be left growing in the seed-pan until they begin to do so.

I wish I could induce everyone to try the calceolarias. The seeds are very fine and require care in starting, but the plants grow off well and a large percentage may be raised with ordinary care. Their wonderful beauty and variety repay all care a thousand fold. From nearly fifty plants which I once raised from a packet of seed, no two of those which I kept for myself were alike. There were all shades from palest lemon, through the scarlets and crimsons to maroon; each odd, little "pocket" veined in contrasting color, the darker ones reminding one of gold lace over velvet. It is a pity they are so rare when they might be had so easily in abundance.

The cyclamen is another plant not nearly so common as it should be, and very easy to grow. The seeds are of good size and require no especial care. The plant is beautiful both in foliage and flower, and is one of the best winter bloomers.

Some plants like the geraniums and chrysanthemums do not come true from seed. This, of course, necessitates buying plants or growing from cuttings when named varieties

are desired, but growing from seeds gives the possibility of obtaining some valuable new variety. In this the amateur stands an equal chance with the professional. Whether valuable or not the seedling varieties have at least the charm of novelty and surprise.

LILLIE SHELDON.

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MILDEW ON SWEET PEAS.

FOR THE first time in an experience extending over several years, we have had trouble with our sweet peas. The past summer they were nearly destroyed by mildew, and as we have never seen any mention of this trouble in the floral papers, we thought perhaps our experience might be of interest to some of your readers.

In the early part of July, just as the sweet peas were in their prime, we had a week of very cloudy weather, with rain and mist every day. We gathered all the opened flowers Saturday at noon, and did not notice anything wrong with the vines at that time. When we went to pick the peas Monday morning, however, we noticed that the vines were covered all over with a powdery mildew, in appearance much like that which comes on the garden pea. We noticed also that there were no half opened buds, and a closer examination showed that the buds had all been blighted when very small. The mildew had so covered the vines that there seemed little hope of saving them, but we determined to try. We purchased a little potassium sulphide (or liver of potash, as it is commonly called), and procured a small spraying pump. The potassium sulphide was dissolved in water, in the proportion of one-half ounce to the gallon, and the vines thoroughly sprayed with this. The effect of this treatment was soon seen in the improved appearance of the vines, but as potassium sulphide is transient in its action and to make "assurance doubly sure," we sprayed them the next day with Bordeaux mixture. As it is hard to make spraying solutions adhere to pea vines, we added to the Bordeaux mixture a portion of the "resin-lime" mixture described in the bulletins and reports of the New York Experiment Station. The vines kept improv-

ing, and in five days had begun blooming again, and the blossoms were soon as profuse and large as ever, although the stems were not so long as before the attack of mildew. We feel sure that had not vigorous measures been taken the sweet peas would have been entirely lost, and if any of your readers have trouble with mildew we recommend giving spraying a trial. Probably the potassium sulphide is all that is necessary. Were we to use a copper solution again we should prefer the ammonia-copper carbonate solution (cupram), as that does not stain the flowers.

PLANTING AND CULTURE.

We have never had any experience with the "sweet pea blight," so much talked of by Mr. Hutchins and others. The reason of this may be that our experience with sweet peas has always been on soil quite heavy with clay. Perhaps, however, a word as to our method of culture may not be out of place. The ground is heavily manured in the fall, and the manure spaded under. In the spring the soil is not disturbed more than is necessary to open up a furrow to receive the seed. Of course the planting is done as early as the ground can be worked. A furrow is made eight to ten inches wide and three inches deep. The seeds are scattered as evenly as possible over the bottom, allowing one ounce of seed for every ten feet of row. Then sow bone meal with the seed at the rate of a quart to fifty feet of row. Next walk up and down the row tramping in the seed. Add two inches of soil and tramp down, then fill the furrow up with loose soil. The plants are not thinned out unless they are closer than an inch or so apart, for they do not need thinning if there is three feet or more in the clear between the rows. They are trained by driving stakes each side of the row and fastening wire or string to these six inches apart.

Treated in this way we have never failed to have vigorous, healthy vines, growing from six to eight feet tall and producing large flowers in great profusion. We literally pick sweet peas from our vines by the armful and they have really been the easiest of all flowers for us to raise.

ALFRED VIVIAN.

Wisconsin.





GLEANINGS FROM MANY FIELDS.

*They whom truth and wisdom lead
Can gather honey from a weed.*

—Cowper.

THE RUSTS OF HORTICULTURAL PLANTS.

The above was the title of a paper read by Byron D. Halstead, of New Jersey Agricultural College, before the Massachusetts Horticultural Society, on January 13th. It is interesting especially as being the last word on the subject to date by a good authority.

ASPARAGUS RUST.

It was in August, 1896, that the first specimens of American grown asparagus rust came to my notice, having been brought to the New Jersey Experiment Station with the statement that the beds from which they were gathered had ripened prematurely and the condition was alarming. A circular, stating the nature of the trouble and suggestions for preventive measures, was sent to the agricultural press and to all experiment stations, and from these sources it was determined that the asparagus rust was seen that year for the first time in New England, Long Island, New Jersey and Delaware. In 1897 it spread along the Atlantic coast as far south as South Carolina, where it became a genuine source of alarm in the large asparagus fields around Charleston. In 1898 the disease spread westward as far as Michigan and southward to Georgia. During 1899, Ohio, Indiana, Illinois and Kansas have been added to the infested area, and within the past month it has been reported from North Dakota. From recent personal observations in the field it has been found that the infection is aerial and not through the roots. This leaves it easy to see how the disease may be carried for long distances by the wind. It has been frequently observed that a bed of asparagus standing alone and surrounded by forests is much less likely to be badly rusted than those in the full open.

The asparagus rust fungus (*Puccinia asparagi*, DC.) introduces us to a species of rust which, while having its full list of forms, namely: teleuto, aecidial, and uredo stages, has them all upon the same kind of plant, and therefore its spread is in no sense dependent upon any other host. The cluster cup stage has not been at all common in America, but wherever occurring has been upon plants in the fence row or upon uncultivated beds. When an ordinary plant is first attacked the genuine yellow rust is only in evidence, but shortly after in the same pustules the darker final spores are developed, and in this stage the fungus hibernates. There are many sides to a question like that of spraying with fungicides. The asparagus has a different foliage from ordinary plants; in fact, the brush is made up of needle-shaped branches with a very smooth surface, to which the Bordeaux mixture does not closely adhere. More than this, the tips of the branches are so fine and delicate that they are burned to some extent by the ordinary mixtures. From various experiments in spraying the conclusion seems warranted that spraying with the standard Bordeaux mixture is not entirely satisfactory.

The chief information of value in connection with the study of the asparagus rust in New Jersey has been the determination of the greater resistance of the Palmetto variety, and also of a French stock, grown as yet only in a very limited extent. Growers are noting the good effect of clean, high culture upon the vigor of the plants, and are using considerable quantities of commercial fertilizers, particularly nitrate of soda, to produce a strong growth of top

that insures a crop when the absence of it might result in a failure. Asparagus growers are working for a more vigorous, but shorter, life of the bed and better rational treatment generally. There is a hope of a natural enemy coming upon the rusts and checking them. There are insects that feed freely upon the spores and sometimes clean out the minute pustules of their dusty spores. Certain species of fungi are parasitic upon the rusts, and in the study of the asparagus rust two were met with, one of which (*Darluca filum*, Cast.) was so abundant as to make it possible that it will prove a material check to its fungous host and possibly remove any anxiety connected with the ravages of the rust.

HOLLYHOCK RUST.

A leading rust in the flower garden is that of the hollyhock (*Puccinia malvacearum* Mont.) which came into this country in 1890, and spread with remarkable rapidity and fatality. It develops upon all parts of the hollyhock as the leaves, stem and floral parts, causing them all to sicken and die. This rust is a good illustration of those that have only the teleuto form of the spore and the sporidia that grow directly from it. In other words the cluster cup and uredo stages are omitted, and the first stage becomes the last, so far as spore development upon the host is concerned. The great rate at which the fungus spreads is to be accounted for largely because it hibernates as the living mycelium in the hollyhock, the young leaves of which exist as a rosette through the winter. As the warm moist weather comes the orange patches upon the foliage enlarge and quickly develop spores that almost at once form the sporidia which rapidly spread the rust to other parts of the hollyhock. Another observation that may be made in connection with the hollyhock rust is its scarcity at certain times. For example, in 1898 there was an abundance of hollyhock rust, while a year later there was almost none upon plants badly rusted the year before. It may be said in explanation that the conditions were unfavorable for the disease, and the health of the plants was restored. Good growing weather with no excess of moisture is the best ally of the victim, and if it comes in time, many kinds of plants will recover from an attack that might be otherwise disastrous.

CARNATION RUST.

Another new rust is that of the carnation (*Uromyces Caryophyllinus* Schr.) which reached us, probably from Europe in imported stock, in 1891, and is still in evidence in nearly all parts of the country. * * * The experiments that have been made with this disease are somewhat limited, but they go to show that preventive measures are better than attempted cures. From the fact that the carnation is largely an indoor plant and propagated by cuttings, it goes without saying that the stock should be healthy from which the cuttings are taken, and no rusted plants should be introduced into a house previously free from rust. One rusted plant under the circumstances of greenhouse growth may be ample to inoculate a whole bed, and this accounts for the sudden outbreak of the rust in houses hundred or thousands of miles apart. Carnation growers are gradually acquiring a knowledge of the susceptibility of varieties and are finding some sorts in this respect much more valuable than others.

CHRYSANTHEMUM RUST.

The latest claimant for our attention among the greenhouse rusts is that of the chrysanthemum. As yet the

advent of this importation from Europe has not been traced back of 1896. * * * This disease is so recent with us that there is very little in the line of remedies that has been determined experimentally. It being a greenhouse plant propagated by cuttings, the precautionary measures are practically the same as with the carnation. The two rusts are, however, very distinct, belonging to different genera of fungi, and not transmissible from one host plant to the other.

BLACKBERRY RUST.

The blackberry and raspberry rust is one of the most serious pests to growers of bush fruits. It shows itself in early spring, dwarfing the cane and ruining the foliage. When such an infected plant is cut to the ground the new shoots springing from the stock will also become rusted like the first growth of the year. Actual microscopic examination of the tissue of the root demonstrates the presence of the perennial mycelium. With these facts before us it is not strange that the multitudes of experiments made to eradicate the disease by spraying the plants result in failure. The Bordeaux or other mixture when upon healthy plants may help to prevent the spread of the disease; but when once within the tissues of root and stem it is out of reach of spraying compounds. It goes without any argument that all such rusted plants need to be dug up and destroyed root and branch, and the earlier this is done the less likelihood there will be of the infection spreading by means of the spores. The burn heap is one of the best adjuncts of a well-equipped horticultural establishment. It excels greatly the rubbish pile. Ashes may be blown about by the winds, and no serious inoculations follow from them.

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THE OTAHEITE ORANGE.

At this writing (the last of January), no plants in my window are so beautiful as two orange trees. They are bearing, each two and three large oranges, fully ripe, and quite the size of the little sweet oranges we buy at market, and I know that they are as good. If all the fruits the plants would have borne had been allowed to mature the plants could not have lived, I am sure, for every blossom had its tiny green fruit that grew and grew until nearly the size of a shell-bark hickory nut, when I picked them off, leaving only two or three, according to the size of the plant. The ripe oranges are so beautiful amid the green leaves, and so much admired that I have let them stay, though the flower buds are putting out for the next crop. I have had these plants four years, getting in the first place only mailing size, and in this time have had two fine crops of oranges, besides all the flowers that they could possibly bear. Our fruitage the second year was bitten, when green, by chipmunks and destroyed, the plants being on the lawn.

CARE OF THE PLANT.

A word about the care of the plant. If close watch is not given the scale louse, so tiny, and as to color, almost invisible, will oftentimes hurt the plant. These insects infest the leaves, chiefly underneath, and the body of the plant, and will hide where one would least look.

They are easily removed with a wooden toothpick or the finger nail. A florist once told us to use fir tree oil, but we have not tried it. We find by frequently sponging the leaves with pure water, above and underneath, we are not much troubled with them, and the plants are better for the bath, though care should be taken not to come against the tiny buds, often just forming. Their crowning glory is when they are covered with flowers as large as the Southern orange blossoms, and as fragrant, which is generally twice a year.

HELEN KERN.

Ohio.

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SALSIFY.

The good housewife welcomes any desirable addition to her bill of fare. In nearly all gardens we see peas, beans, beets, turnips, tomatoes and squashes, but in comparatively few do we find salsify, yet it is one of the most delicious vegetables we have, and can be prepared for the table in a number of different ways. If you have never tried it, by all means add salsify to your list of seeds this spring. The Mammoth Sandwich Island is the best variety. It will grow well in any good garden soil, but will have the longest, smoothest roots in a light or mellow soil well pulverized to the depth of twelve inches. Sow early in spring in drills a foot or more apart, covering the seed not more than two inches. Thin out to six inches apart. A portion of the crop can be dug in the fall, if desired, but the greater part should remain in the ground all winter, like parsnips. If a covering of straw be given the bed, the roots can be dug at any time during the winter.

Salsify is commonly called the vegetable oyster, having somewhat the flavor of the real bivalve. It can be used for soups, also boiled and fried. The following way of preparing makes a delicious dish: Wash and scrape the roots, slice in pieces a quarter of an inch thick and boil in salt and water. Put over in cold water and boil for half an hour from the time it begins boiling. About five minutes before taking from the stove add one tablespoonful of flour, half a cupful of cream, half a cupful of milk, and butter to taste. If you have not cream, use one cupful of milk and a little more butter. Sometimes the water in which the salsify is cooked will not boil away as much as at others. If there is too much water, turn off a little before adding the cream, milk and butter.

F. B.

BEGONIA GLOIRE DE LORRAINE.

It has been said that this begonia may be most quickly propagated by the leaves, the same as *B. rex*. C. B. in a late number of the *Florists' Exchange* says:—

This is entirely at variance with my experience, and with most growers who have grown it in quantity. True the plant can be propagated by the leaf, but by no means as readily as the *rex* section, and although the foliage is now mature (February) there is no season when so little growth is made; and to strip the plants of their leaves, or but partially, only tends to weaken the plants, and the leaves will take from three to four weeks to root; and instead of little growths making their appearance shortly after the roots are formed it will be several weeks. To cut up the plant, using a leaf with an eye, is almost as slow at this season. Hard, ripened or mature wood or leaves is not the best, or the present the most opportune season. The plants require a partial rest to recuperate, and as soon as new growth commences the plants should be encouraged, not defoliated, and when vigorous growth is obtained strong cuttings can be taken that will root easily in the cutting bench in about ten days. Leaves may also be used for cuttings when the cuttings are vigorous, although they take longer to root; but do not cut as usual with the *rex* varieties.

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OPUNTIA OR PRICKLY PEAR.

A forage plant of promise for the warmer regions, and especially for the arid section, is the thornless cactus. This is an *Opuntia* or prickly pear which yields enormous amounts of the so-called leaves or pads which are in reality flattened branches, some ten to fifteen tons per acre, being often reported. The pads contain only from five to

ten per cent. of dry matter, but being a watery food it is adapted to stock in dry regions, especially where more concentrated food seed, as cotton seed, can be given as well. The best sorts are thornless, and can be cut for fodder if desired, though if this be done no fruit is produced. Messrs. Lathrop and Fairchild sent the Section of Seed and Plant Introduction an entirely smooth cactus used for fodder in Argentine, and Mr. Swingle, while studying the agriculture of the Mediterranean countries, sent the prickly pear of Sicily. This latter is thornless, but has minute prickles. Cattle, however, eat it readily, and it has the advantage of producing delicious fruits.

The *Opuntia* grown in Sicily, produces delicious fruits in great abundance, often ten tons per acre. In Almeria, Spain, as high as fifteen tons of fruits are sometimes produced. In Sicily the well-ripened prickly pears are really delicious, and these improved varieties should be tried in all the Southern and Southwestern States. Some of these best sorts have been obtained and will be distributed to the experiment stations for trial.

The above announcement is made by the Department of Agriculture at Washington. It would have been much more satisfactory if the names of the species referred to had been given. It appears as if some mistake had been made in these statements when ten to fifteen tons is mentioned as the produce of an acre of leaves or pads for forage, and also ten tons of fruit per acre produced in Sicily and fifteen tons of fruit in Spain. It is improbable that the weight of the fruit should equal that of the forage produce.

PRUNING TREES.

Persons who engage in heated argument on the subject of pruning are usually talking about different subjects. Nothing is more common in horticultural discussions than controversies respecting the proper season in which to prune; yet the proper season depends on whether one has in mind the healing of the wounds, or the production of fruit, or the production of wood. Persons will cut off a limb; if the wound heals well, the season is said to have been right; if it does not heal, the season was wrong. The man experimented; what greater evidence could be asked?

Now the fact is that the healing of a wound depends more on the way in which the cut is made and its position on the tree, than on the season of the year. Long stubs heal slowly or not at all, no matter what the season; wounds made close to the main branch or trunk (not beyond the "bulge") heal quickly. Wounds on vigorous limbs heal more quickly than those on side or weak limbs. Other things being equal, wounds on fruit trees heal best if made in early spring.

Pruning alone cannot be depended on to make a tree fruitful. It is only one of the

means of making it bear; other means are good soil, thorough tillage, proper varieties, spraying for insects and fungi. But when the tree is once in a fruitful condition, pruning should be such that the bearing habit will not be upset. Very heavy pruning of the top always tends to make wood, and usually at the expense of fruit. The habit of allowing trees to go unpruned two or three years, and then pruning heavily, keeps them in a constant state of wood-bearing. This is one of the common reasons why orchards do not bear. Get the orchard into bearing condition; then keep it so by pruning a little each year.

Pruning is a means of thinning the fruit. The best fruit is borne on strong healthy limbs. Remove the weak wood on the inside and underside of the top. A peach pruner instinctively thins out the weak interior growth. He may not know why, but he is lessening the struggle for existence and is giving the fittest the chance. As a rule, give the best limbs the best chance. One rarely succeeds in trying to force the poorest limbs to be the best.

L. H. BAILEY.

Cornell University.

PLANT BREEDING BY BUD SELECTION.

The Experiment Station, Manhattan, Kansas, sends out a bulletin from the Botanical Department, by A. S. Hitchcock, on the above named subject. The writer, by the citation of cases and authorities, shows how well it is known that important variations may occur among plants of well established varieties, and then urges practical horticulturists to regard this subject more attentively in the propagation of stock. Unquestionably, greater attention should be given to it, and fruit-growers particularly, during the next quarter century, will probably make great gains by the careful selection of the best and most profitable forms.

From the above, it will be seen that bud variation is a fact well recognized among horticulturists, especially florists and growers of ornamental shrubs and trees. I wish especially, however, to call attention to the good results following bud selection in ordinary propagation. While a sudden and marked variation from the type (usually called a sport) is an exception, yet slight though recognizable variation among shoots on a tree is the rule, and these variations tend to perpetuate themselves, though they sometimes revert, as do seedlings. Our orchard fruits would be improved more rapidly if there were more care used in selecting the scions, buds, or cuttings, from those individuals which have proven themselves to be in advance of the average. Not only should buds be selected from proper individuals, but even from a particular branch. Small fruits can be easily improved in this way.

The common practice of plowing up, or digging up at random, the young plants from a strawberry bed is not conducive to improvement of the varieties. The most successful growers are learning that it pays to select from the best individuals of each generation. In fact it is advisable to keep a patch on purpose for breeding. Of course a grower cannot take time to select individual plants for his customers, but he can select his breeding plants each year from the best plants of the preceding year, and thus gradually improve his breeding plants, and through them the general crop.

* *

LILY OF THE VALLEY.

In the January issue of VICK'S MAGAZINE—a splendid number—Mr. Rexford attributes the failure of this plant to bloom, so frequently the complaint, to the lack of proper protection in winter. That may be the cause in some cases, and his suggestions are good and should be observed. I have, however, had a bunch of lily of the valley growing in a part of the yard so well protected that the ground seldom freezes but slightly, but they would not bloom until last year. Last spring I trimmed away the outside growths and thinned the central portion of the bed and applied some rotted manure, filling up the places where the plants were removed and mixing and working it into the soil. The result was plenty of bloom for the first time.

A neighbor has a bed of this plant by the side of a porch on the east side of the dwelling,

which always yields abundantly and without any covering during winter. She does not allow the plants to become matted together, but keeps them in hills or stools, as we grow strawberries. The main cause of the trouble here complained of is probably neglect. Give the plants room and plenty of nourishment, and our reward will be ample in large spikes of bloom.

CHARLES BETTS.

Michigan.

* *

HARRISI LILIES AFTER BLOOMING.

Mr. Scott says, in his "Manual," "we have frequently planted out the plants of Harrisi that had been grown and cut at Easter. If a good piece of stem is left, so much the better. Many of them will send up a flower-stalk from which you will get a few flowers in July and August. This is all the use you can make of them. To force any of them again is out of the question."

* *

BOUGAINVILLEA AS A BEDDING PLANT

It is noticed in a late issue of the *Rural New Yorker* that Bougainvillea Sanderiana was tried as a bedding plant, last summer, on the grounds of J. L. Childs, Floral Park, N. Y., and proved admirably adapted for the purpose.

* *

"IN TIME OF PEACE PREPARE FOR WAR."

Insects and plant diseases have temporarily withdrawn from the conflict and rest during winter's cold in egg mass or cocoon, in conidium or spore. The warmth of spring will again waken them from inactivity and unless their coming has been prepared for they will, as before, claim too large a share of many a grower's crop. The farmer or fruit grower may well spend some of his winter's leisure in freshening up at the institute his knowledge of fungicides and insecticides or in going through his file of bulletins with the same end in view. A new publication along this line which he should add to his collection, if he hasn't it, is Bulletin 161 of the New York Agricultural Experiment Station. This gives details of experiments with gooseberry mildew and offers the grower a remedy so cheap and so effectual that he cannot afford to neglect its use. A potassium sulphide solution does the business and costs less than half a cent a bush for materials. The Station will send the bulletin to any one who requests it.

A QUEER CASE.

It was a case of bulblets, and a very serious case it seemed to the writer, as it deprived her of a whole crop of beautiful bloom in her tiny lily bed, and thinking others might be similarly afflicted, I concluded to write to the editor of this helpful magazine for cause, prevention and cure of such cases. They were large, fine bulbs of *Lilium melpomene*, *L. rubrum* and *L. auratum*, and they grew and flourished and filled my heart with joyful anticipation — alas, never to be realized!

First, *auratum* budded, then suddenly, with less than a week's warning, died. I dug it up to examine the bulb, and to my surprise found every inch of space below the ground covered with bulblets the size of a large pea, with a tiny root running down from each. Some were larger, with two roots. The bulb itself was badly decayed, and I took it to pieces and planted the scales (after removing the decayed portion), together with the bulblets in a smooth, soft place, and covered with an inch or two of soil.

Soon *rubrum*'s foliage began to turn yellow, and the story of *auratum* was repeated. Lastly, *melpomene*, a magnificent specimen, with two great stalks and nine fine buds, also began to throw out yellow leaves, and, digging the earth away a little, I discovered there, also, the fatal bulblets. However, I think the buds would have matured had they been earlier, but they were very late, and this is a capricious climate. The night of October 9th was such a one as is not due here until December, and next morning the creamy, crimson dotted buds hung limp and ruined. Of the "weeping and wailing" I will not speak. There was nothing to do but carefully separate the bulblets from the stalks, and plant them as I had those of *rubrum* and *auratum*. The original bulb had, in this case, divided itself into two, and the centers of each were good and sound, and I removed their decayed scales, and planted them with the bulblets. Now, Mr. Editor, will you tell me why I have, instead of a crop of bloom, a bed of twenty or so bulblets? Also, what I am to do with my "new possessions" to make them of use?*

EMMA B. FRENCH.

Oregon.

* *

A FINE AMARYLLIS.

I much enjoy the change in the form of the MAGAZINE. It seems like an old friend. My mother commenced with the first number published, and we have only missed about two years. We have the first eleven volumes bound in the green binding as they were formerly bound. I have bound one volume and have another partly bound. They are all treasured in our family. I enjoy the colored plates, too. I have an *Amaryllis Johnsoni*, which last spring had five stalks, bearing sixteen flowers. The main bulb in the center had two stems, with four on each stem. Some of the smaller ones had never blossomed before, so had but two flowers on a stem. My treatment is rest from fall till February. I never cut the leaves unless they turn yellow, and only repot when absolutely necessary — once in three or four years.

Ohio.

MARY B. REEVE.

* Probably these bulbs had been too long out of the ground, and in the meantime they had been making an effort for self-preservation, so that soon after being placed in the soil the bulblets assumed shape and started on an independent existence. All that is to be done now is to watch them and encourage their growth, hoping that in due time they may reach maturity and bloom.

FRUIT NOTES.

THE ELBERTA PEACH.

With Colored Plate.

The Elberta peach, although introduced several years since, may still be considered one of the new varieties, and which many professional peach-growers have not yet included in their orchards, and in garden culture it is still less known. Although of southern origin, this variety has been proved hardy and valuable in nearly all peach-growing sections. The size and appearance of the fruit is well shown in the frontispiece in this number, the painting having been made from an average specimen of the larger-sized fruits. The largest specimens will measure eleven inches in diameter and weigh over nine ounces. The variety originated in Georgia, and is a cross between Crawford's Early and the Chinese Cling. The season of ripening is a little later than Crawford's Early, and it forms an excellent succession to that variety. The tree is vigorous and a strong grower. The fruit in quality is similar to Crawford Early, but not quite equal to it for dessert purposes, as decided by discriminating judges, but for canning purposes it is superior to it, holding its form better and shrinking less. It is justly considered one of the best varieties in cultivation for market purposes, the fruits running very uniform in size. For the home garden it is also one of the most desirable.

* *

HYBRID PLUMS.

Hybrid Plums are new in the pomological field. It is only within the last decade that they have been known. Now there is a considerable number of them.

Hybrid-making among plums is especially easy because there are several distinct species in cultivation, and also because they mix readily when growing together.

The first study of the hybrid plums was conducted by the Vermont experiment station, and a bulletin was published a year ago dealing with certain fundamental principles involved and also describing and illustrating all the known hybrid varieties. Since that time a large number of fresh, spick and span new hybrids have come to light, many of them not yet introduced to the nursery trade. These, too, have been exhaustively studied by the

horticulturist of the Vermont experiment station, and a second treatise on the subject is included in the annual report.

In this latest treatise notes are given of thirty-nine different hybrid varieties. Already a number of hybrid varieties are for sale, and some of them have been extensively planted. It seems probable that they will soon make a strong impression on the plum growing business of the whole country.

Of course it is impossible now to recommend any one of these varieties. They are all too new. It will require several years of planting and testing to reveal their merits. The man who is interested in testing novelties will find a most engaging batch of material in the hybrid plums. The man who is planting plums for fruit had better wait and see what happens. Meanwhile it is convenient to have the names and descriptions authoritatively fixed, as in these up-to-date publications from the Vermont experiment station.

* *

THE ROSSNEY PEAR.

This variety, which originated from seed in Utah, about twenty years since, is receiving favorable attention by planters in California. It is a large fruit, much the same shape as the Diel, symmetrical, creamy yellow skin, with crimson blush; rich, tender, creamy flesh, of superior flavor; small core. Ripens two weeks later than Bartlett. Tree vigorous, hardy, good and regular bearer.

* *

SCRAPING FRUIT TREES AND PRUNING

Many years ago this practice was strongly commended by writers, and no doubt many old orchards of apple trees have been benefited by it, but the practice has fallen into disuse generally. If the soil of the orchard is kept in good condition and the trees are pruned every year, the scraping of the bark is surely not necessary. If moss appears, the cause is bad treatment. Scraping will not remedy the fault or remove the cause which is neglect and ill treatment.

The orchardist finds it necessary to use much care and skill to keep the tops of all fruit trees well balanced, fairly open to sun and air in every part, and to prevent long, bare branches with a heavy brush at the extremity. Some varieties of apple, and nearly all varieties of peach, have a strong tendency to this habit of growth. It may be easily checked if care is taken while the trees are

young. If the terminals of the main branches are kept properly thinned out, the fruit in the interior of the top will usually receive sufficient light and air to perfect both color and flavor, while the fruit is not so apt to drop prematurely.

CHAS. BETTS.

* *

"CURL-LEAF" OF THE PEACH.

It appears from the testimony given before the summer meeting of the Michigan Horticultural Society by Mr. Fulton, Mr. Packard and Professor Taft, that a simple solution of copper sulphate, one pound to twenty gallons of water, is quite as efficient to prevent "curl-leaf" as Bordeaux Mixture—and Professor Taft says he has found whitewash about as good as either of the others.

Two years ago when we had so much curl-leaf we sprayed during the winter and spring, and we found that the spraying after the 1st of April was less effectual than previous to that time. In the winter there are no spores. We then have the body of the fungus. It is a sort of cob-web mildew that is down in the bud scales, and is exposed about as much at one time as another; and if the spraying is put on, using the copper sulphate or Bordeaux mixture, previous to the 10th of April, or possibly the 1st of May in the very northern part of the State, perfect success will result. I know of a large number of persons who sprayed before the 10th of April, in 1898, and I do not know of a single case of failure when they put it on thoroughly and used either the copper sulphate solution or Bordeaux mixture. I have found whitewash, a mixture of lime and water, about as effectual as copper sulphate or Bordeaux mixture, but the fact that it is as easy to prepare the copper sulphate, and as it is easier to apply, I prefer to use the copper sulphate solution, about one pound to twenty gallons

* *

INSECT PESTS.

The alarming prevalence of two species of tent caterpillars during the past season and the probability that they will reappear in 1900 makes widespread knowledge of methods of repression necessary. In Bulletin 152 of the New York Agricultural Experiment Station, issued last season, the Apple-Tree Tent Caterpillar was discussed. In Bulletin 159, lately sent out, Prof. Lowe gives a very full, interesting and valuable treatise upon the Forest Tent Caterpillar. Both of these bulletins give methods by which these pests may be quite thoroughly kept in check. These measures include destruction of the egg masses in the fall and winter; spraying with arsenicals while the caterpillars are at work in the spring; swabbing with kerosene when they are collected in groups, or in the nests, and jarring from the trees; banding the trees to prevent access of wanderers and invaders; and destruction of cocoons in June and July. These bulletins may be obtained from the Station.

FRUITS FOR THE FAMILY ORCHARD AND GARDEN.

It matters not what sort of fruits please the marketmen and their customers, who usually go by sight instead of taste, those who grow their own fruits ought to have the best that the country affords. It may not always be that those varieties that are the most delicious in flavor and that we may especially desire to plant are such as would be the most profitable from a commercial standpoint, but some of them are among the best bearers and the most thrifty and enduring trees and plants. Even if they are not all so, we should be willing to sacrifice a little in the way of vigor of tree or productiveness, that we may have good quality in the fruit. By having the matter of high quality uppermost in mind when selecting varieties to plant, and then endeavoring to choose such as are reasonably vigorous and productive, there is no good reason why both objects may not be attained to a reasonable degree.

Another obstacle in the way of making our selections of varieties is, that our country is so wide and so varied in its climate that what is good for one section may not be for another. It is therefore impossible to make up a list that will be suitable for the whole country, but there may be one that will be reasonably safe to plant over the main portion of it. To do this will be my endeavor in what shall follow.

The conditions are such in the northern parts of the New England States, Northern Canada and that part of the Mississippi valley lying north of a line running from Chicago to Des Moines and Denver that these regions will have to be left out of the account. And the same is true of the warmer parts lying south of the northern lines of Georgia and the Gulf States. Not that these regions cannot have good fruits, but they require lists especially suited to their conditions.

The endeavor will be to place the varieties in order of ripening, and to enclose in brackets those ripening at or about the same time, that selections may be intelligently made, of one or more kinds, in case the whole list of any class of fruit is not desired. There are many who have small places, or even village lots, who may thus be able to choose such as may apply to their moderate needs.

It is urgently suggested that only one or two trees or a very few plants of a kind be chosen instead of a large number of any one variety, thus giving a more continuous succession and

suiting a larger variation of tastes than could be otherwise possible.

APPLES.

1 { Early Harvest	5 { Mother
{ Summer Rose	{ Melon
{ Hightop Sweet	{ Artley
2 { Primato	{ Grimes
{ Early Joe	6 { Hubbardston
{ Fanny	{ Jonathan
3 { Lowell	{ Huntsman
{ Golden Sweet	7 { York Imperial
{ Summer Pearmain	{ Stark
4 { Jefferis	8 { Bentley
{ Chenango	
{ Gravenstein	

PEARS.

1 { Madeleine	4 { Louise Bonne
{ Giffard	{ Boussock
2 { Tyson	5 { Bosc
{ Rostiezer	{ Sheldon
3 { Bartlett	6 { Lawrence
{ Seckel	{ Nelis
{ Howell	

PEACHES.

Triumph	Elberta	Oldmixon Free
Carman	Barnard	Chairs
Mountain Rose	Fitzgerald	Salway
Champion	Reeves	Ringgold

PLUMS.

Owing to the variation in the adaptability of the different classes of plums, it is best to put them in the three sections to which they belong.

AMERICAN.	JAPANESE.	EUROPEAN.
Milton	Red June	Clyman
Whitaker	Abundance	Lombard
Wooten	Burbank	Bradshaw
Acheeda	Wickson	Yellow Egg
Quaker	Hall	McLaughlin
Wyant	Satsuma	Fellenberg

CHERRIES.

The several classes of cherries differ so much in flavor, and also in adaptability to the different climatic conditions, that they must also be divided into three lists. The sour or Morello type will succeed all over the territory mentioned in this article; the Dukes will not succeed well in the Prairie States, and the Hearts are of little value west of the Alleghanys, except on the Pacific slope, where they do better than anywhere else in America.

MORELLOS.	DUKES.	HEARTS.
Dyehouse	May Duke	Tartarian
Richmond	Late Duke	Mercer
Montmorency	Choisy	Napoleon
Phillipe	Hortense	Roberts
English	Magnifique	Windsor

QUINCES.

Every family orchard should have at least a quince tree or two. They should be in good, rich soil and will well repay for a little extra attention in the way of soap suds or other waste water poured at their roots. Orange, Missouri, Bourgeat and Champion are all good kinds.

GRAPES.

It is very easy to have grapes of different colors, and for the convenience of any who may not know to which class each belongs three lists will be given.

BLACK.	RED.	WHITE.
Campbell	Delaware	Winchell
Moore	Brighton	Loraine
Worden	Ulster	Diamond
Concord	Catawba	Niagara

BLACKBERRIES.

Good blackberries are so easily grown that there is no excuse for not having at least a few bushes in every home garden. Among the best varieties are: Early King, Agawam, Eldorado, Minnewaska and Taylor. Of the dewberries or creeping blackberries, Mayes and Lucretia are the best.

RASPBERRIES.

There are several botanical species of raspberries, but for convenience we will group them into three classes and according to color.

BLACK.	RED.	YELLOW.
Palmer	King	Caroline
Progress	Miller	Golden Queen
Conrath	Columbian	
Kansas	Loudon	
Older	Church	

STRAWBERRIES.

We all know what a good patch of strawberries is worth to a family. There are so many good kinds now that it is easy to have them ripening for about six weeks. Here is such a list. Those marked (Per.) are perfect in flower and need no other variety to pollinate their flowers in order to make them bear fruit, while those marked (Imp.) are imperfect in flower and need some perfect flowered variety near them.

Michel (Per.)	Bubach (Imp.)	Warfield (Imp.)
Thompson (Per.)	Belt (Per.)	Carrie (Per.)
Splendid (Per.)	Clyde (Per.)	Parker Earle (Per.)
Wood (Per.)	Brunette (Per.)	Gandy (Per.)

GOOSEBERRIES.

A few gooseberry plants are very easily grown and occupy but little space in a garden, and they will yield a large quantity of fruit. The varieties that belong to the European species bear much larger fruit than our American kinds, but the bushes are badly affected by mildew. However, the modern spraying remedies enable us to successfully fight this disease, so that we can grow all kinds.

AMERICAN.	EUROPEAN.
Red Jacket	Industry
Champion	Triumph
Downing	Crown Bob
Houghton	Columbus
Pearl	Chautauqua

CURRANTS.

Although there are several species of

currants in cultivation, nearly all of the good varieties belong to two that are European. For convenience they will be arranged according to color.

RED.	WHITE.	BLACK.
Red Cross	White Dutch	Champion
Fay	White Grape	Crandall
Wilder	Gondoin	Naples
Pomona		Saunders

H. E. VAN DEMAN.

* *

THE CARDINAL POINTS FOR PEACH GROWERS.

1. *Location of Orchard.*—Sandy soil or sandy loam naturally dry, or underdrained, protected, if possible on the west and north-west by a windbreak. A northern exposure or slope is particularly desirable.

2. *Varieties.*—Select varieties that have been proved the hardiest for the locality, or hardy in comparison with known hardy kinds.

3. *Trees.*—Healthy stocks raised from seed of so-called natural trees, and budded from healthy bearing trees. One-year old trees at planting out being headed back to a height of two feet or less.

4. *Culture.*—Clean cultivation from early spring until the last of July. What weeds grow after this time mow and leave them lying on the ground.

5. *Pruning.*—Prune every spring, cutting away one-third of the previous season's growth.

6. *Fertilizing.*—Fertilize liberally every year with mineral fertilizers.

7. *Insects.*—In fall and early spring dig out bores from root and crown; every spring wash the body and larger limbs with a soap solution—soft soap, hard brown soap or whale-oil soap—with addition of a little crude carbolic acid.

8. *Diseases.*—Remove promptly and burn up any tree affected with yellows or any other fatal disease. For curl-leaf, spray every year, late in winter or early in spring, while the buds are dormant, with a solution of copper sulphate, one pound to twenty gallons of water, or with Bordeaux mixture.

9. *Protection from Rodents.*—Protect during winter the base of the tree from rabbits and mice.

10. *Marketing.*—Be honest in packing. Grade the fruit into three sizes, firsts, seconds and culls; send to market only the firsts and seconds, each package the same throughout and the grade marked on the outside.

C. W. S.

BUD, BLOOM & SEED POD.

*Nearer to the river's trembling edge
There grew broad flag flowers, purple, pranked with white,
And starry river-buds among the sedge,
And floating water lilies, broad and bright.*

—Shelley.

Set trees every year.
Cactuses from the cellar.
Slip into plant propagation.
Plant even pot plants firmly.
Gardening is its own reward.
Does frost give parsnips sweetness?
Now the sun woos the window flower.
The glory of many a town is its shade trees.
For earliest beets start some in the hot-bed.
Rich soil vegetables excel in deliciousness.
Coal ashes and sand are the best of soil lighteners.

Greens. If you neglected sowing fall spinach sow now.

It is an advantage in every way to order planting stock early.

One pot plant well cared for is worth a dozen neglected, stunted ones.

There is no risk in planting gladiolus bulbs, for early, as soon as the soil can be worked.

No fail. Sow a subscription to this MAGAZINE and see what a harvest it will bring forth.

The planting of evergreens tempereth the wind to the early garden as well as to the shorn lamb.

If one has a greenhouse, some rhubarb may easily be forced by placing it in soil under the benches. The early cutting affords a fine relish.

Scrape off the rough bark of apple trees. Thus you destroy the chance of the beetles of flat-headed borers, finding a lodging in which later to lay eggs and trouble.

A hint. You can destroy 200 or more tent caterpillars on apple trees now about as easy as you can kill a single worm in June. Their nests encircle the twigs near the ends and on a sunny day they can easily be seen. Clip and burn.

Horseradish. The right way to handle this root is to treat it as a cultivated crop, same as you would parsnips. There is this difference, however; you raise a new crop of horseradish by setting slips of roots the thickness of a pencil, three inches below the surface. Rich soil.

The okra or gumbo market has never yet been developed in the north as it deserves.

Somebody should push this vegetable into a larger demand. The prices usually are remunerative. This vegetable, rich in nutrition, stands high as a favorite in the Southern States.

Most of a tree-planter's risk comes with late planting. There is almost no risk in early planting. That is why the wise tree-planter is eager to get his order so early with the nurseryman, that it may be among the very first reached. The percentage of loss from late planting is so large that he can well afford to be at a good deal of extra pains in the matter of earliness.

A good asparagus bed makes the owner live like a king. Only those who have to buy vegetables from a corner grocery are competent to realize the incomparable advantage of obtaining such direct from the garden. From plot to pot is what secures the deliciousness of all vegetables. And while we are on this subject, let us never let up on the fact that ground can scarcely be too rich for asparagus. In making new beds bury plenty of manure.

How proud the children are of the first calla of the year. How watchful of its unfoldings. How they delight in its beauty and what respect they show for its delicate purity as they say "you musn't touch it." Home floriculture adds greatly to the equipment of the home schooling—the schooling that seems to count more than all other in the development of real character. A journal like the present one indirectly promotes self-culture. The more subscribers it has, the better justice can it do its mission.

E. A. LONG.

* * *

AS SPRING COMES ON.

Soon the lilacs will be budding. Cut away all suckers and they will bloom the better for it.

The owners of gardens that are apt to suffer from drouth should cultivate the acquaintance of *Nemesia strumosa*.

No garden can ever look full and varied the whole year 'round without a goodly number of plants grown from seed.

Adonis vernalis, the *chionodoxas*, and scarlet wind flowers bloom in March along old, sunny wall sides in southern gardens.

Through the warm weeks of early winter many of our bulbs suffered with insomnia, and came up too soon. Moral—plant them later.

Who can tell me whether that fine-leaved old fragrant geranium, Prince of Orange, is now quoted anywhere in American commerce?

How prodigally nature spends the sunshine color in spring!—the *adonis*, *crocus*, *forsythias*, *daffodils*, *tussilagons*, and a host of others.

A pretty plant to place under shrubs or hybrid roses for bloom at this time of year, is the winter *aconite*. Sometimes it blooms in January.

Sprigs of lemon-verbena placed in finger-bowls will scent the water delightfully. The crushed leaves will sometimes cure nervous headache.

The March winds occasionally dislodge mistletoe branches still bearing a few milk-white berries. "Sown" in incisions made in the bark of oak and gum trees they sometimes grow nicely.

Under the shrubs in sunny places the white *alyssum*, *pulmonaria* and *tussilago* are coming into flower in our southern gardens. They give a pretty variety to the *crocus* and other early bulb beds. The sweet violets, too, are blooming better now than they did in autumn.

The North Carolina Experiment Station has recently published a bulletin giving a list of its flowers, which, from *ranunculus* to ferns, now number 2,685 species. Three rare plants, *Lilium Grayi*, *Shortia galacifolia*, and *Rhododendron Vaseyi* are natives of the mountainous regions of this state.

Recently I stumbled across the fact that from one *Pæon*, the physician of the Olympian gods, who used the plant's leaves for healing, the name *Pæonia* was taken. To Pluto when wounded by Hercules, their magic gave new life. How many beautiful old myths are embalmed in the names of our flowers!

The great honey-drop always found in the bell of the crown imperial, now pushing up so sturdily in southern gardens, always recalls its story; the rebuke of the Lord for planting its crown when all other flowers drooped in sympathy with His suffering. Since then the bells hang downward and have great drops like tears. These stories connected with so many flowers, increase our interest in them, and cling like fragrance through the years.

THE WALLFLOWER.

Oh, that our American gardeners loved the dear, delicious-breathed old wallflower as well as Queen Victoria does! In her Osborne gardens its varieties are said to be especial pets. You gardeners who have had bona fide success in growing them, tell us how you do it! In March these wallflowers bloom, if properly grown, and how acceptable they would be now!

BEGONIA GLOIRE DE LORRAINE

recently covered itself with a fresh halo of glory at a White House dinner, they say. The dainty little plant is very airy and fragile-looking, but is reported as really quite a substantial factor of decorations. Tiny little plants, only two months old, have great flower-panicles. I have not yet seen the pale pink sport, which, I am told, is even more robust than Gloire itself.

CARE AND FERTILIZING.

Many of our early blooming plants, as the *aconites*, *scillas*, *daffodils*, *narcissus*, etc., are injured rather than helped by extra care in fertilizing and watering. Such plants ought to be naturalized among clumps of shrubs and left alone. The flower-borders are too rich for them and the cultivation given to border flowers disturbs their rest. All the moisture they need at growing and flowering time nature gives them in bountiful spring rains. Drying as hard as bricks in summer does not hurt them, and they never thrive in a bed that is watered and cultivated to suit other plants.

LYGODIUM PALMATUM.

In the deep, moist, peaty soils outside Philadelphia and in the adjacent New Jersey region, in shaded, sheltered places there grows a lovely little climbing fern that the darkey fakirs gather and sell about Philadelphia streets just before Christmas. The stems are long and wiry; the pretty, palmate leaves delicate and graceful. I have often wondered if this were not the same as the Hartford climbing fern, but have not been introduced to that beauty yet. The botanical name of the Philadelphia species is *Lygodium palmatum* and it is very lovely. The long sprays taper charmingly, the small leaves near the tip bearing the yellow spore-masses by which the plant increases. It must be an extra good self-seeder for the abundant supply of the Market street fakirs seems never to fail them, though they have drawn it from the same sources for very many years.

G.



NATURE STUDIES FOR YOUNG PEOPLE.

Go forth under the open sky and list to
Nature's teachings. —Bryant.

MARCH.

"Spring, the sweet spring,
Is the year's pleasant king.
Then blooms each thing,
Then maids dance in a ring,
Cold doth not sting,
The pretty birds do sing,

Cuckoo, jug-jug, pee-wee, to-witta-woo!"

—Nash.

WHEN this verse was written, three hundred years ago, perhaps they did not mind the cold as we do now. But never mind the "sting", all the volunteers must be out of doors every minute they can spare, for there is so much to be seen and heard!

First let us go to the bog, or a meadow that has a little stream running through it. In this bog I expect to find three things as early as the first week in March.

THE SWIMMER.

The first is a swimmer. If we get to that pool of water quietly enough we shall see him dancing about on the top of the water. He is a beetle. He does not mind the cold, and there he is twisting and circling about, true to his name, which is whirligig water beetle (*Gyrinus*).



WHIRLIGIG
WATER-BUG.

He is a queer little fellow, in a coat of mail, which shines as if it had just been varnished. If you startle him as you come to the water's edge he will toss up his heels and dive down among the grasses and roots

under water and hang on by his long fore-legs. They have to "hang on" if they wish to remain below the surface, for, as they dive, a bubble of air is caught below the tips of their wing-covers, and this acts like a life-preserver, and would make them come to the surface if they did not hold fast.

I do not know any beetle better provided for anything that may happen than this same Whirligig. If he gets tired of swimming he may take to his wings and fly, for underneath the black varnished wing covers are a pair of

gauzy wings, that will carry him where he pleases. Besides his feet with paddles on them for swimming, and his gauzy wings for flying, he is well provided for seeing. On the under part of his body are a pair of eyes, covered with a kind of goggles. With these eyes he keeps a sharp watch so that he may know of the approach of any enemy from below. On the top of his head is another pair, keenly on the lookout for just such enemies as you or I. Don't you think the Whirligig is a pretty lucky fellow? Look at his picture, have you ever seen him?

THE PIPER.

Next we are to listen for a piper; perhaps I should say pipers, for if we are lucky, and the sun should have thawed the ice pretty well, we may hear two, as at the earliest sign of spring they rise out of the mud and pipe away for their own satisfaction and for ours. The one I love best to hear is called Pickering's frog (*Hyla Pickeringii*). You all must know his clear, shrill whistle, which in the spring seems unusually thrilling. Move quietly to the water's edge. Two bulging eyes and the tip of his pointed nose are all we can see. If we could induce him to show himself we should find he was a tiny creature to make so much noise! From one inch to an inch and a half is all he measures when seated by the side of his favorite stream. He is yellowish in color, marked and mottled with darker spots of the same shade.

One other friend in the bog is the *Acris crepitans*, sometimes called from his cheerful note "bog cricket." His voice, to my mind, is not so pleasant as Pickering's frog, but he has a much gayer dress. Olive green, with spots and dots of red and black, and on his sides large spots of black outlined with white. He is a tiny creature too, about the same size (one and one-half



ACRIS CREPITANS—Natural Size

inches) as his friend *Pickeringii*. This latter frog has on the end of his toes queer little pads. Can you guess what they are for? Not for swimming, but for climbing! After the summer sets in this frog betakes himself to trees and bushes, and from his perch we hear him all the summer and late into the fall.

The *Hyla versicolor*, which we heard last October in the woods, gets started a little later than Pickering's frog, and the "bog cricket," and so keeps going a little later in the fall.

THE GROWER.

The third thing we find on our tramp I shall have to call a grower, for while snow still lies on the ground and the birds are shy about coming, we may find this queer-colored mottled night-cap poking out of the ground. Poor skunk-cabbage, such an ugly name and such an ugly odor! Yet think of it being a cousin to the calla lily! Look at it well, after it gets above ground; the point of the night-cap is twisted to one side, and inside we may see a round, knob-like spadix covered with pollen, for when other plants are just dreaming of getting up, the skunk-cabbage is up and doing and showing us the first plant-form of the season. It is sometimes called swamp-cabbage, and surely this is the prettier name of the two. After the plant gets its growth and spreads the rich, many-veined leaves over the damp, black earth of its favorite home, it loses, to a great extent, its coarse smell. It stands quite as an emblem of patience, despised by man, yet keeping on its mission, which is to ripen its seeds. There is no hurry about this. The seeds go on slowly ripening through the hot summer days, and it is not until September that it is ready to shed them, looking like bullets, hard and dark in color. Though we may not choose this plant to bear home with us, there are some little creatures, that are usually very dainty in their feeding, that delight in it and seek it as soon as their chilled wings can bear them. They do not belong to the bog, but, like us, they go there for March treasures.

Did you notice the initial letter at the head of this study and see the bees flying through it? Those are honey bees who begin to stir themselves just as soon as there is pollen to be found. Where can they get pollen, you ask. In the skunk-cabbage, loads and loads of it. On the first catkins that hang out

their tassels to the breeze. The very first thing a bee needs in the spring is pollen. She rushes at it, "kicking up a dust", as it were, until it gets all over her back and on the hairs of her body. Then she neatly combs it out with the brushes and combs she has on her legs, moistens it a little, scrapes, rolls and pats it until she gets it into her pollen baskets, and then home she flies. After the bee gets home with its load, this is the way she gets rid of it.

"When a bee brings pollen into the hive, she advances to the cell in which it is to be deposited and kicks it off as one might his overalls or rubber boots, then off she walks without even looking behind. Another bee, one of the indoor hands, comes along and



SYMPLOCARPUS FOETIDUS
SKUNK-CABBAGE

rams it down with her head and packs it into the cell as the dairy-maid packs butter into a firkin."

Can it be that the odor of the Skunk-Cabbage, which we so dislike, is spread abroad to signify to the bees that the pollen is ready? We may be sure that it answers some purpose, for Dame Nature always works with definite ends in view.

"The bee buzzed in the heat,
'I am fain for honey my sweet.'
The flowers said, 'Take it, my dear,
For now is the spring of the year.'
So come, come!
Hum."

—Tennyson.

HOT SHOT.



The Volunteers are coming to the front in a very satisfactory manner. Standing shoulder to shoulder they wish to become acquainted.



Roy Wilkerson, Cranberry, Allen Co., Ohio, "Would like to correspond with other youths of different parts of the country to learn their customs."

Maude Kellerman, Ohio, sends an interesting little paragraph telling of the intelligent way some dogs tested the ice before venturing on it.

O. W., East Hampton, Mass., sends her dues in some words about familiar friends. Can anyone answer her question?

OUR FRIENDS, THE TOADS.

They interest me along with the flowers, from the time the first little sleepy fellow is turned out with a spade full of earth, until cold weather sends him below the surface again.

Several years ago we had a fine specimen of perennial pea. It grew so thriftily, my husband thought best to cut out the minor shoots. In doing so, an immense "grass frog" (?) hopped out, and waited patiently near by, until he could go back again. Afterward, we looked for him often, but could never catch sight of him.

Twice during the summer, just before a heavy rain, his big bass note sounded, seemingly, as a warning for all toadies to go in out of the wet. In both instances there had been a regular convention about the premises, toads of all sizes, and at the note of warning they quickly disappeared. Ordinarily, there seemed to be a dozen or so about the garden, a few occasions during the season calling up hundreds at a few moments' notice. The wonder was, where did they all come from. Once in the summer, a myriad of winged ants came out from about the edges of a big flat stone that lay at the foot of the steps leading into the garden. Soon as they appeared, every toad in the region round about came to feed on them. It was fun to watch them unroll their little tongues quick as a flash, and, presto, where was the ant? Can anyone explain about those ants?

O. W.

Ernest I. Reynolds, of Rhode Island, sends quite a model letter which we print below. The Volunteers must remember not to make their letters too long, for we want to give all a chance to pass a word along, and space is limited.

Last summer my father had a small garden. In it we raised potatoes and tomatoes and other vegetables. About July or August we noticed a large green caterpillar on one of the potato plants. We took it into the house and put it in a box, which we had prepared for the development of insects, and left it with some potato plants and also some dirt, as we had found that it goes into the ground in the larva state. In a few days it went into the cocoon, in the ground. After this we found several others, and kept them also. One of these, when we looked at it the next morning, was covered with small white things which, under the magnifying glass, we saw were cocoons. In a few days they all came out in the glass jar, where we had put them, and we found they were *Ichneumon* flies.

Another, we found, was partly covered by these cocoons and we watched one of these small worms, through the

magnifying-glass, make its cocoon. It first wove the cocoon in front, with a substance which came out of its mouth; and then it turned clear around, so its back was where the front had been, and finished weaving, from bottom to top on this side, leaving the head till the last.

After the flies came out the caterpillar died, for the flies are parasites. Although a few we found were not covered by the cocoons, most of them were.

The name of the caterpillar is the potato worm or tomato worm, *Macrosila quinque-maculata*.

I found out by reading about them that the flies in the larva stage lived inside the caterpillar, feeding on its body.

Was the worm you found like the picture?



Did it have whitish stripes along the sides of the body, or did it have a row of seven spots, varying in color from red to pale lilac, set in a patch of pale yellow along the middle of the back?

If the latter, I think you have mistaken the Hog-caterpillar, *Ampelophaga myron*, which is usually infested by *braconid* parasites, for the potato worm.

NANNIE MOORE.

* *

Caterpillars.

I want to tell you a little about the caterpillars we had in school this term, and ask you a few questions. We had many different kinds of caterpillars, as the milkweed, parsley, celery and tomato. Those were the most common. When these caterpillars were brought, the food upon which they were found was also brought, for if they did not have their food they were restless and gave a great deal of trouble. One by one they coiled themselves up and went to sleep; some of them will remain so all winter. There were three or four which came out very pretty butterflies. As it broke from the chrysalis, it made one think of the caterpillar hanging from the end of a twig. As it dried it began moving its wings. While it was doing this the body became shorter and the wings longer, and soon we could not recognize the once ugly worm. ETHEL R. DARLING.

Rhode Island.

* *

Black Ants in a Bone.

I am very much interested in the Nature-study, as it helps to keep the eyes open and see things in the world. I did not join the club that was formed in my room at the Point street Grammar school at first, but after I had read the circulars which you sent us and had seen some things that I wished to know about, I decided to join the club.

One day last summer, when my brother and I were out riding by Wickford, I spied something by the roadside that looked queer and something like a piece of a tree. I got off my wheel and went over to it and picked it up. When I picked it up a piece of it fell off. My brother told me it was a bone of some animal. It was about fifteen inches long and two inches thick, and at each end was a large joint. This bone was all decayed and full of ants. The ants were so closely packed in the bone that they made it quite heavy. I broke the bone in two pieces and the ants ran out in all directions. The ants were large and black.

Rhode Island.

CLARENCE S. CROWNINSHIELD.



SOCIETY COUNSELS.

. . . *Wise men ne'er sit and wail their loss,
But cheerly seek how to redress their harms.*

— *Shakespeare.*

Western New York Horticultural Society.

On January 24th and 25th the Western New York Horticultural Society held its forty-fifth annual meeting in the Common Council chamber, Rochester, N. Y. The president, Mr. W. C. Barry, made a few opening remarks in relation to the method of conducting the meeting. At the same time he took occasion to pay a high tribute to the efficiency of the secretary, Mr. John Hall, and urged the members to cooperate with him in securing new members to the Society, thus increasing its usefulness.

The following officers were elected for the current year: President, William C. Barry, Rochester; Vice-presidents, S. D. Willard, Geneva, George A. Sweet, Dansville, W. R. Smith, Syracuse, C. M. Hooker, Rochester; Secretary and Treasurer, John Hall, Rochester.

The first address was by Prof. W. H. Jordan, Director New York Agricultural Experiment Station, Geneva, N. Y., on "The Commercial Fertilizer Situation."

THE WINDSOR CHERRY.

The first list question taken up was "The Windsor Cherry; What of its value as an Orchard sort?"

Vice-president Willard said that the Windsor was the most valuable cherry ever introduced as a market fruit. In 1898 it brought ten cents a pound; in 1899, twelve cents a pound.

Mr. G. T. Powell spoke of the vigor of the trees and their great resistance to disease; almost iron clad. Ripens from the 6th to the 10th of July on the Hudson.

Mr. McKay asked if the Windsor cracked more than other varieties. Mr. Willard replied that it was very free from cracking and rot.

Dr. G. C. Caldwell, chemist, Cornell University, read a paper on "Experiments with Commercial Fertilizers," giving interesting results of experiments conducted at the Station and also by farmers.

OTHER CHERRIES.

Discussing Question 2. "Is there any other new cherry of promise commercially?" Replying to inquiry whether anyone had tried the Bing, Mr. Willard said he had tried it; scions were sent from Oregon; a beautiful and excellent cherry; resembles the Windsor, but larger; three to three and one-half inches by tapeline measure.

"Have you tried the Hoskins?" "No."

"Do you know of any light colored cherry good for the market? If one lived near a canning factory it might be profitable to raise light colored cherries."

Mr. Ford spoke of the Bing as being sweet, dark colored and following the Windsor.

To the question "What is the best sour cherry?" the answer was the Montmorency, though the English Morello was perhaps equal.

CURRANTS.

Question 3. "What encouragement is there for growing currants?"

Mr. Powell regarded the currant as one of the most valuable of small fruits. The currant worm and insect stalk-borer were drawbacks in currant culture. The demand for pure food will make a new demand for currants, as jellies are made chiefly from this fruit.

Mr. Willard said that he grew a good many currants and agreed with Mr. Powell that they were a profitable crop. He thought some of the old varieties could be grown with a great deal of profit. President Wilder was a most valuable market currant. Pickers could earn double the wages in picking the Wilder that they could in picking the Fay,

and the market price was ten cents a quart for the former and five cents for the latter. The White Imperial was a fine table fruit, but no white currant could have a commercial value.

Mr. Powell considered Fay's Prolific one of the best producers on his place; has picked sixteen quarts from a single bush.

Prof. Beach spoke of the White Imperial as a good dessert variety; President Wilder as a late keeper. Had not found them twice as prolific as Fay's, though good.

Later, the discussion was renewed, and Mr. Barnes, a large grower on the Hudson, said that Fay's had been the standard in his section for a number of years. It was apt to be weak in wood and should be pruned and fertilized; it was not very long lived. The Cherry currant was not strong; the Versailles was better. May's Victoria has been a very prolific variety, though not so large as some others. It is a vigorous grower,—had picked eight quarts from a single bush. Prince Albert was one of the latest acquisitions; vigorous grower, but light colored as compared with some other varieties; a good market sort. Had received better results from President Wilder than any other variety. It holds on longer than any other currant.

APPLES.

Question 4, "What is the outlook for the Apple grower," brought on an animated discussion.

C. M. Hooker regarded the prospect as very encouraging. Have had three years of great success in growing fruit in Western New York. Growers were learning every year more and more how to grow apples, and how to destroy insects and fungus; progress very satisfactory. Old varieties, especially the Baldwin, were very profitable, bringing good prices.

Mr. Wood pronounced the apple the king of all fruits. Apples had saved his life financially and he had great faith in them. He had grown the Twenty Ounce with good results; it was an annual bearer. Black Gillyflower was pronounced free from worms and fungus, and buyers from the South had paid fifty cents more a barrel than for other varieties.

Mr. Udell had grown Baldwin and Twenty Ounce apples over fifty years. For a few years back fungus and insect pests have almost ruined crops, but now these difficulties are being overcome and orchards are in such good condition that, if all should bear, there would be a crop like that in 1896. New York State apples were the finest in quality in the world, and "The Baldwin Forever" was his motto.

The question was asked how many times to spray. Three times: In March; again when the bud is almost ready to burst, and after the flower falls.

Professor H. E. Van Deman said that Western New York was the Mecca of the apple business. The winter apple question was the important one. The Baldwin was holding its own, but in his opinion the Ben Davis was growing in favor as a market apple. If planting an orchard he would put in a row or two of Ben Davis, even in Western New York. Other varieties which he would recommend were Rome Beauty, Grimes' Golden and Hubbards-ton. The Grimes Golden is the best apple in America for family use. As to whether there was any encouragement in planting Baldwins and Greenings, Professor Van Deman said the apple business rules the world and it is not going to die until everything dies. He referred to Judge Williams, who was over sixty years old when he planted an orchard, from which he has cleared thousands of dollars. Now he has over 1,600 acres in orchard.

PAPER BY MR. POWELL.

George T. Powell presented a paper on "The Present Status of the Fruit Growing Interests of New York and Its Relation to Land Values." Mr. Powell said that the natural conditions in New York State were such as to encourage more extensive, but at the same time more intelligent fruit growing. A poor quality of fruit should not be raised, and more care should be exercised in packing. Where care has been exercised the earnings on fruit lands had been larger than on land used for cereals or for dairy purposes.

THE MOST PROFITABLE PEAR.

The question, "Which is the most profitable pear?" was then discussed. Some said the Keiffer was in demand and sold well. Others said the Bartlett. C. M. Hooker said the Dutchess brought \$13.00 and \$14.00 per barrel net, in England, as he knew from experience. The finest quality of fruit was selected, and each pear wrapped in paper.

Professor Van Deman said that the Agricultural Department in seeking pears to send to the Paris Exposition found that canners were labeling Keiffer pears Bartletts, and characterized this as a dishonest game. If canners want the Keiffer, and the people are satisfied with it, why not sell it under its own name?

JAPAN PLUMS.

The question, "Which are the most valuable Japan plums from a commercial standpoint?" was taken up.

Mr. Smith thought the Wickson and Burbank best; for three years the Wickson had behaved very nicely on Seneca Lake. It fruits heavily and should be thinned. Had sold fifteen pound cases of Wickson at \$3.00 a case when Lombards sold for sixty cents a case.

Mr. Willard thought Red June and Burbank the most valuable. The Red June ripens early, by the 17th of July, is of good size and color and fine appearance; sells well. No other plum so productive or that pays as well as the Burbank. When the trees were properly thinned the fruit was so large the canners did not want it; it was too large for their use. The October Purple was not a great acquisition, would not advocate planting it.

Professor Van Deman asked if canners and people liked the Japan plums. Mr. Willard said, "Yes, the flavor of the Burbank was exquisite when canned. It did not come into competition with the Niagara, being three weeks earlier." The curculio is just as bad on Japan plums as on other varieties.

Mr. Wood asked if the Burbank was subject to the yellows. Mr. Willard said he had 1,500 trees, but none were affected by the yellows.

Mr. Bogue asked how the Hudson River Purple was doing in Western New York. Mr. Willard said it was subject to the black knot; he was grafting them over.

Professor Van Deman thought Japan plums would take the yellows like peaches, though not so badly.

PROFESSOR BEACH ON THE SAN JOSÉ SCALE.

Professor S. A. Beach, Horticulturist, New York Agricultural Experiment Station, Geneva, N. Y., read a paper on "The San José Scale from a Horticulturist's Standpoint."

THE EVENING SESSION.

LANTERN SLIDES.

Professor M. V. Slingerland, Entomologist, Cornell University, presented a very interesting paper on "Some Insect Experiences of 1899," illustrated with lantern slides.

Mr. David Bell, of Brighton, showed some lantern slides illustrating the method of pruning pear trees.

The secretary read a short communication from Mr. C. W. Seelye, and showed two lantern slides of plants introduced the past year. The first one, *Eremurus robustus*, is a native of Central Asia and introduced in Europe in 1874, but appeared in the trade in this country for the first time the past fall. It is a hardy perennial, with leaves growing in a tuft at the surface of the ground, and a flower spike rising to a height of eight or ten feet. The individual flowers are of a soft rose color with a darker line through the middle of each petal, and the flower spike contains hundreds of lily-like flowers. The blooming season commences

toward the end of the summer and lasts five or six weeks. The other slide showed the beautiful new rose, Admiral Dewey, originated and introduced last year by John H. Taylor, of Bayside, Long Island.

NEW PEACHES.

The discussion of the question, "Are there any new peaches of special value to the orchardist?" was then taken up. The Fitzgerald was spoken of as being of fine size, nearly as large as the Crawford, and ripening a little later. Another speaker said the quality was more than good, and the tree was very hardy in Mr. Morrell's orchard.

The Crosby was pronounced very hardy, a good peach for canning, but not for market. Mr. Williams was much pleased with it. Had shipped a few baskets. Like all peaches, soil and location have much to do with results. Mr. King gave an unfavorable report. With Mr. Severns (?) it had not been very satisfactory; the Elberta was as big as four Crosbys.

The Chair's Choice was very highly regarded in some sections. It is a late peach, ripening about the same time as Late Crawford.

Mr. Woodward reported a new seedling from the Crawford, a little later. Would not buy Crawfords if he could get Niagaras. The Willard was spoken of as being of very fine flavor and coming a little later than the Crawford.

Mr. Van Deman spoke of the Niagara in the very highest terms. The Greensboro, Smead, Lamont and Beckwith were spoken of. The latter was described as a late peach of rich, dark color; when properly grown was a freestone, otherwise a clingstone; in quality very rich.

Mr. McKay pronounced the Elberta the finest peach he ever saw. Should be picked green, and will then color up. Can be picked and kept in the cellar several weeks.

Mr. Van Dieman spoke of the Waddell, Greensboro and Smead; also of the Champion, which he said was a very desirable early peach—one of the best white-fleshed varieties. He suggested trying the Crothers. Spoke of the Willard as being a very large and handsome yellow peach. Snow's Favorite was pronounced very desirable.

Mr. Getzman spoke of the Kalamazoo as being very popular in Michigan; very hardy and the best market peach.

Mr. King said the Early Crawfords were not doing well with him. Was putting the Brigdon in place of them.

Mr. Hopkins said the Early Crawford was more subject to the disease "Small Peach" than any other variety.

In replying to a question about spraying peaches, Bordeaux mixture was said to be very effectual. It should be done early, as late spraying injured the foliage.

DISPLAY OF FRUITS AND IMPLEMENTS.

The exhibition of fruits was exceedingly fine. The exhibit of Ellwanger & Barry was the largest, comprising seventy varieties of apples, forty of pears and forty of grapes. The Geneva Experiment Station had a very large and beautiful exhibit of apples, comprising eighty varieties. A pyramid of apples and pears from Albert Wood & Son of Carlton Station, attracted much attention. A. M. Smith of St. Catharines, Ont., had a display of apples, also Luther Collamer of Hilton, N. Y. James Craib made a fine exhibition of fruit, the principal feature of which was the Red Bietingheimer apple. Curtice Bros., of Rochester, made a fine display of canned fruits. There was also a large display of horticultural implements by various manufacturers.

EXHIBIT OF INSECTS.

Dr. E. P. Felt, State Entomologist, was present at the meeting and exhibited eleven cases of injurious insects, including fruit tree insects, shade tree pests, garden insects, household insects, seed and stored grain insects; and one of beneficial insects. A descriptive catalogue accompanied the exhibit.

PAPERS, AND THE INTEREST IN THE MEETING.

Space does not permit even of the mention of numerous able papers presented and read by noted horticulturists, all of which will be published in the Proceedings of the Society. The meeting of the society was a grand success, both in point of numbers in attendance, and the interesting and practical nature of papers and discussions. F. B.

LETTER BOX.

Let me have audience for a word or two.
—Shakespeare.

Hyacinths and Tulips.

At what time in the year should hyacinth and tulip bulbs be planted so as to bloom the first spring after they are planted?
S. B.

Eckhart, Md.

Plant in October or November.

* *

Black Flies About House Plants.

Several years ago my onions seemed to be turning yellow at the top and did not grow well. On lifting them I found small white worms eating in at the bottom of the little onions. I then scattered wood ashes over the bed, thinking only of making those that were not affected grow faster, which it did, but it also killed the worms. Since then, for the last four years, whenever I see black flies about my flower pots, I sprinkle with wood ashes the top soil, then water, and find three times repeating the operation always makes a finish of the pests.
A. M. J.

Haggedorn's Mills, N. Y.

* *

Moles. — Blue Dahlia.

In October number of MAGAZINE, 1899, page 21, it is told how traps are set for moles in the garden. I can tell of something better than traps to drive away moles; I know by my own experience. Go over the ground and look over all traces of the work of the moles, and where you find the ground heaved up, put in the runway a handful of salt, or anything that is salt — a piece of salt codfish skin, or anything that has been salted, and the same moles will never come back; but other moles may come from other directions. Then go over the runways as before. The same moles will never return. I have kept them from my garden for years in that way.

Looking over the December MAGAZINE I noticed in the Letter Box the statement about blue dahlias. I have had a blue dahlia, and I will tell how it happened. I planted last spring a dahlia root in my back yard, near my back door; it was not doing well, and every washing day I put the blue rinsing water around it, and when it bloomed the flower was a bright blue—the first blue dahlia I ever saw.

Connecticut.

MRS. HULDAH KNAPP.

* *

Decorative Asparagus.

I would like you to inform me when to separate an Asparagus Fern. It now has shoots about three yards long, which are covered with emerald green foliage. Should the shoots be cut or allowed to grow? Your MAGAZINE is much better since it has been enlarged. The frontispiece is something grand.
H. C.

Fall River, Mass.

The long shoots form a beautiful feature of the plant, and should not be cut off unless wanted for some kind of decoration. It is not advisable to disturb an asparagus plant as long as it appears green and thrifty, and it can be held in this condition a long time if properly cared for, and then when the pot is full of roots supply liquid fertilizer. However, if a plant in summer shows signs of resting the amount of water can be diminished somewhat for a week

or two, and then the plant be divided and the smaller tufts potted in small pots, and be kept close for awhile in a warm place and encouraged to grow. Young plants from seeds are preferable to root divisions.

* *

Tuberous Begonias.

How should tuberous begonias be treated? I sent last spring for a tuber, and it grew to be a beautiful plant, and had a number of buds on it all the time, but they fell off without blossoming; should it have very much water and does it require very rich soil?
A. B. C.

Glen Wild, N. Y.

Tuberous begonias like a soil of which a large portion is leaf mold. Equal portions of loam, leaf-mold and sand would be quite suitable. In summer they require a plentiful supply of water, and they also want the air and to be exposed to the full sunlight except during the very hottest part of the day. In the case of enquirer it is surmised that the plants may have been kept too much in the shade, and were, consequently, weak.

* *

Propagating Azaleas.

Will you please let me know how to propagate azaleas and when is the proper time for it.
G. H. L.

New York.

Azaleas are propagated most successfully in April and May from cuttings of the new growth or half ripened wood. Plants which have been kept back, and which started new growth about March 1st, will have made shoots about three or four inches in length by the middle of April, and this young growth will then be partly hardened. From these young shoots take off cuttings about two and a half inches in length. Remove two or three of the lower leaves, and shorten the remainder of the leaves about one-half. Insert these cuttings an inch in depth in sand in shallow boxes, or in a propagating pan if only a few are to be raised. The box or pan should be well drained and the sand should be fresh. Do not use sand that has already been used for any purpose. At the bottom of the box or pan place bits of broken pots half an inch in depth in order to secure perfect drainage. Fill the sand within half an inch of the top and with the flat side of a brick or block beat it down firm, then sprinkle it, and again beat it down. The sand

is now ready for setting the cuttings, as already mentioned. The cutting box or pan should now be placed in a small frame in the greenhouse, standing in the coolest part of the house and where there is no bottom heat. Cover with a sash having the glass shaded with whitening or other material. The object is to keep the foliage from wilting, but the cuttings need air, therefore raise the edge of the sash about half an inch. At night the sash can be removed, but must be replaced early in the morning, and the second day it can be kept raised a little higher, and taking it off again at night. Watch the cuttings from day to day gradually giving more air until after about two weeks the sash may be left off entirely. The cuttings will need syringing twice a day to prevent flagging and to keep off insect attacks. The day temperature of the house should not go above 60° or 65°. The cuttings will be well rooted in about six weeks and be ready for potting off. Very few azaleas are raised from cuttings, or any other way, in this country, as it is much cheaper to procure the plants imported from Holland and Belgium.

* *

Calla.—Cauliflower.—Cucumber.

1.—I have a calla lily and the leaves are turning white. Will you in the letter box of the MAGAZINE tell me something of the culture of one and what I shall do for mine, as soon as you can conveniently do so.

2.—Tell me how to treat cauliflower when it begins to head.

3.—What makes cucumber vines turn yellow about the time they commence to bear? MRS. W. A. L.

Butler, Pa.

The calla is not having sufficient light, ventilation and fresh air. It should have air every day from the outside, of course taking care not to admit it when chilling or frosty. It will not do to keep a calla in a confined warm room with a temperature of 70° or more. It will stand the heat provided it has ventilation and a good light.

2.—Cauliflower should have an abundant supply of water, and the heads can be kept white by having some of the leaves tied together over them.

3.—If supplied with plenty of water and insects kept off, cucumber vines will remain green and healthy.

* *

Cedar Apples.

Will the apples or balls on cedar trees injure an apple orchard? There are a great many cedar trees in my orchard and the surrounding woodland. Most of them are large trees. Is there some spray that would prevent them? They did not have balls on until a few years ago. They

were planted as wind-breaks, and I should be sorry to have to cut them down. I am very much pleased with your MAGAZINE and hope you will continue to publish it for many years.

E. S.

Miami County, Ohio.

Cedar apples are forms of fungi. Several species of fungi assume one form of their existence on cedar trees (*Juniperus*), and in another stage, or form, they exist on the leaves of the apple, pear, quince and other *pomaceæ*. One of the most common of these is *Roestelia pirata*, which appears as a yellow rust on apples. The species which most injures the quince is *Roestelia aurantiaca*. Both of these fungi make the cedar tree their host, where they assume the form known under the name of cedar apples. Lodeman, in his work, the "Spraying of Plants," gives a brief and intelligent account of the apple rust, which we can do no better than to reproduce here for the satisfaction of our enquirer and for other fruit growers:

"The effects of this fungus (*Roestelia pirata*) upon the apple are first noticeable during the latter part of May, or in early June. The leaves are then dotted with bright yellow spots, the so-called rust; the fruit is also attacked about the same time. Such fruit becomes worthless, as the growth is increased at the diseased point, and the swollen part produces spores, which ruins the apples. Spores are also produced on the under side of the leaves. They appear and ripen during midsummer. They will not germinate and grow upon either the leaves or the fruit of the apple, but they will develop the fungus upon the cedar. Then the mycelium enters the tissues, and as growth advances, enlargements appear upon the branches of the tree. Such swellings or cedar-apples, as they are called, are from half an inch to almost two inches in diameter, they become full grown early in spring. During April and May, horn-shaped masses an inch or more in length are produced by the cedar-apple. They are of a bright yellow color and can readily be seen among the green branches of the cedars. Upon these soft, yellow bodies the spores are borne; these spores will not grow upon cedars, but only on the leaves or fruit of the apple. They ripen in spring, and consequently it is at this season of the year that the apple tree must be protected. Unfortunately, when a tree has once become infested, it seems that the mycelium of the rust may remain in the buds and branches for years, and in the spring when the young leaves have formed, the characteristic yellow-spots may again appear, although no new infection has taken place. The disease is sometimes so serious that the tree loses all its foliage, and this alone would ruin the crop, although the apples themselves may not be attacked."

The treatment recommended is to remove from the orchard any very badly infected trees, and to cut away the worst branches on trees not so badly attacked. To prevent further attacks, spray the trees with Bordeaux mixture as soon as the leaves appear, making two applications, about eight or ten days apart, and if heavy rains should occur a third spraying would be desirable. In the case of our enquirer, it would no doubt be best to cut and destroy the cedar trees in the orchard, and, if possible, those in the woodland.

EDITOR'S NOTES

Eastern New York Horticultural Society.

contains valuable information for fruit-growers.

An excellent report of the annual meeting of this society, February 7 and 8, received too late for this issue, will appear in the April number. It contains

* *

American Rose Society.

The first exhibition of this society will be held in the City of New York, at the Eden Musée, 23d street, on the 27th, 28th and 29th of the present month. This is the annual show, and the exhibits will be of roses grown under glass, and of course the Teas and Hybrid Teas will be the dominating classes. In June another show will be held at which the hardy or garden roses will come to the fore.

* *

Sweet Pea Bicentenary Exhibition.

The date of the Sweet Pea celebration, noticed in this department last month, has been fixed at present for July 20th and 21st, though the dates may yet be changed. The exhibition is to be held at the Crystal Palace, Sydenham. Nineteen open classes are provided for cut blooms, all to be shown in vases, these including classes for forty-eight, thirty-six and eighteen bunches; and thirteen classes for one bunch of a specified color or colors. Four classes are limited to amateurs. Then there is a division, open to all, consisting of five classes instituted for the purpose of demonstrating the value of Sweet Peas in all forms of decoration known to the florist's art. Details of the whole celebration not yet concluded.

* *

American Carnation Society.

The annual meeting and show of this society was held in Buffalo, February 15th and 16th. More complete details of the meeting and the exhibition, both of which were highly satisfactory, will be given in our issue of next month. The officers elected for the ensuing year are: President, Mr. Robert Halliday, Baltimore, Md.; Vice-President, Mr. William Weber, Oakland, Md. Mr. A. M. Herr, of Lancaster, Pa., was re-elected Secretary, and Mr. Fred Dorner, of Lafayette, Indiana, re-elected Treasurer. The meeting next year will be held in Baltimore.

The specially valued prize, the Lawson gold medal was awarded to Duilledouze Brothers of Flatbush, N. Y., for the carnation known as 666, or the three-sixes, a magnificent white flower with spots or stripes of pink at the center. The full list of prizes will be announced hereafter.

The Mrs. Thomas W. Lawson Carnation, already celebrated in romance and fact, was presented in fine display and greatly admired. It was not entered for any premium.

* *

Bulletins of N. Y. Experiment Station.

The New York Experiment Station, Geneva, has the past month issued several popular editions of valuable bulletins of 1899, which gardeners and farmers should supply themselves with and study before the growing season comes on. One of these entitled Canker; an Enemy of the Apple, by F. H. Hall and Wendell Paddock, should be in the hands of every apple grower. The subject was presented by Mr. Paddock, at the meeting of the Western New York Horticultural Society, in 1899. Since then a year's experience has been gained. Evidently the disease is one which is progressing in this country, and already in some orchards has done great injury. It has been made a special study by the authors above men-

tioned only for two years past,—a brief period to comprehend fully its nature, and to learn how to combat it. Nevertheless some advances have been made and the instructions offered to orchardists are particularly valuable. The preventive treatment advised should be adopted in all cases of the disease:

Other valuable popular editions are "Injury by Sun Scorching Foliage"; "Divers Diseases Discussed"; and "Report on Paris Green and Other Insecticides."

* *

New Names for Old Plants.

In the February number of *Meehan's Monthly* the change of name is noticed of the *Wistaria* which by the new nomenclature has become *Krauhnna*. Mr. Meehan says.—"If a plant of *Krauhnna* were offered a person, it might be rejected as probably being some delicate house plant, too troublesome to have around, or possibly a noxious weed. But as *Wistaria*, the whole being changes—it becomes a welcome article. Whatever botanists may try to do to restore long-forgotten names, it is out of the power of horticulturists to change them. The name of *Wistaria* is so generally diffused, that not even the famous seven-leagued boots could bring *Krauhnna* up to displace it."

And yet another of our hardy climbers suffers as severely at the hand of the revisionists, as the Virginia creeper, now so well known as *Ampelopsis quinquefolia*, becomes *Parthenocissus quinquefolia*. When will it go into the trade under the new name? The trouble with all this new naming is that it is not final, it only adds to the existing confusion, as there is no world agreement among botanists: In the horticultural trade it is probable that the Kew Index will be held as authority, at least during the 20th century, and so we may still enjoy the beauty of the *Wistaria* in bloom, and sit beneath the shade of *Ampelopsis quinquefolia*.

* *

Can Soda replace Potash as a Fertilizer?

For several years past Mr. Andrew H. Ward, Agricultural Chemist, Boston, Mass., has asserted, through the press and otherwise, that soda can, in a great measure, replace potash in chemical manures, so far as the demands of plants are concerned, and to great economical advantage of the agriculturist, gardener and fruit grower. This position is taken in opposition to that of most agricultural scientists that soda is of little value as a manurial constituent. In November, 1898, Mr. Ward read a paper before the Florists' and Gardeners' Club, Boston, entitled "The Use of Chemical Fertilizers. Soda, the key to the cost of Fertilizers, makes a Revolution in their Manufacture and Use." The statements made in this paper by Mr. Ward, were held by Mr. William P. Brooks, Professor of Agriculture, Massachusetts Agricultural College, to be misleading, and to sustain this contention he delivered an address on the 7th of February, 1899, before the society named above, entitled "What Plants feed upon, and How to Feed them."

These papers have led to a series of correspondence between Mr. Ward and Prof. Brooks. This correspondence has been published in pamphlet form and put into circulation. Is it a fact that the value of soda as a plant food has been underestimated or overlooked by agricultural chemists in considering experimental tests? It is now time that the value and action of soda as a manurial element should be fully considered, new tests in relation thereto made if necessary, and the facts in relation to this element placed before the agricultural community.

The Agricultural Department, at Washington, should take the matter in hand, and directly and in concert with several of the State Experiment Stations, make the proper investigations. If the current estimate of the relative values of potash and soda are correct it should be reaffirmed with the authority of undeniable facts; if it is erroneous it is time that it should be known, in order that our agricultural interests may profit by such knowledge.

AMONG THE CATALOGUES.

Since the February MAGAZINE was issued, the following Catalogues have been received:

D. M. Andrews, Boulder, Colo., an odd-shaped Catalogue of plants, seeds, and especially Colorado shrubs; cacti, etc.—28 pages.

Bateman Mfg. Co., Grenloch, N. J. Their 1900 Catalogue of Iron Age farm and garden implements is well illustrated and printed—a very useful book for every grower of vegetables. The cover, printed in colors, shows the blacksmiths at work making their implements, and a field where the tools are in use.

Alfred Bridgeman, 37 East 19th street, New York, N. Y., sends out a finely printed and illustrated practical Catalogue of flowers, vegetable and grass seeds, bulbs, etc.—68 pages. Though the cover is not lithographed, the whole work has a business-like and pleasing appearance.

S. J. Baldwin, Seneca, Kas. 16 page Price List of nursery stock, with a colored plate of cherries.

Coles' Seed Store, Pella, Iowa, issue a well printed Catalogue of 80 pages, devoted to garden, field and flower seeds. The cover is lithographed in colors, showing sweet peas and poppies on its front and vegetables on the back.

M. Crawford, Cuyahoga Falls, Ohio, issues a very complete list of strawberries—16 pages.

The Cyphers Incubator Co., Wayland, N. Y., have a splendid Catalogue filled with fine cuts and half-tones of incubators, brooders, poultry, etc., with instructions and descriptions. Any one interested in this line would do well to consult this book of 192 large pages.

The Golden Wedding edition of Dingee & Conard Co., West Grove, Pa., brings to us a Catalogue well filled with beautiful roses, and instructions regarding the best varieties and their culture. Two colored plates and the cover give us such rose treasures that we feel as if the month must be June instead of February. A colored plate and several pages are devoted to decorative plants.

Eagle Seed Co., Binghamton, N. Y.—A very neat little Price List of flower, field and garden seeds—32 small pages.

Elkhart Carriage and Harness Mfg. Co., Elkhart, Ind.—A 144 page Catalogue, with one or more illustrations on each page—an endless variety of carriages and harness, enough to satisfy the millions. They say, "We have been selling direct to the user at factory prices for the past twenty-seven years." The cover is unusually attractive.

Ellwanger & Barry, Mt. Hope Nurseries, Rochester, N. Y., have surpassed themselves in their General Catalogue for 1900. The cover shows several varieties of lilacs in natural colors, on a background of gold, and is simply elegant. All the best varieties of fruit and ornamental trees and shrubs are catalogued, with clear descriptions and beautiful illustrations. The Catalogue as a whole is a gem—a masterpiece of work—144 pages.

Floral Glen Greenhouses, Des Moines, Iowa.—A Catalogue of 16 pages, "Prepared for the Lovers of Flowers."

R. & J. Farquhar & Co., 16 South Market street, Boston, Mass., send out this year an attractive Catalogue of 136 pages, the first sixteen being devoted to specialties. The cover is lithographed, representing the Canna Wendland on the front and the Begonia Gloire de Lorraine and ever-popular Clematis paniculata on the back.

Ford Seed Co., Ravenna, Ohio.—Their twentieth annual Catalogue is a very compact list of seeds and small fruits—56 pages.

D. M. Ferry & Co., Detroit, Mich., issue an attractive Seed Annual. The lithographed cover displays asters in front and onions (that seem beautiful enough to be free from all their peculiar fragrance) on the back cover. There are four colored plates, and 160 pages filled with illustrations and descriptions of flowers and vegetables.

Henry W. Gibbons, 132 Liberty street, New York.—A Catalogue of greenhouses and heaters, also small conservatory heaters, with prices, etc., well illustrated—36 pages.

Fred'k H. Horsford, Charlotte, Vt.—A neatly printed Catalogue of 48 pages, of hardy ornamentals, well illustrated.

Iowa Seed Co., Des Moines, Iowa, combine patriotism and flowers in the unique cover of their Catalogue. 100 pages are devoted to flowers and vegetable seeds, birds, aquariums, seashells, etc. The two colored plates and wood cuts can but attract attention.

Harlan P. Kelsey, Boston, Mass.—16 page Price List of "Hardy American Plants and Carolina Mountain Flowers."

J. T. Lovett, Little Silver, N. J., issues a well-illustrated Catalogue of small fruits, roses, plants, seeds, etc.—72 pages. The lithographed cover shows a young lady with an apron full of flowers on front cover, and five cannas on the back.

William Henry Maule, Philadelphia, Pa., says of his Catalogue: "There is no doubt but what it is the most complete book of real good things to be had for the American Planter." Of course, as we believe in Mr. Maule, we should believe he speaks the truth. There are four colored plates and a lithographed cover, the back giving a bird's eye view of the Trial Grounds.

Noxall Incubator and Brooder Co., Quincy, Ill.—A Catalogue of 32 pages, containing illustrations, descriptions and prices of incubators and brooders—a practical little work.

L. L. Olds, Clinton, Wis.—A well illustrated Catalogue, with 48 pages, largely devoted to potatoes; also flower and vegetable seeds.

Pease Garden and Nursery, Des Moines, Iowa.—A very chaste Catalogue of 16 large pages, including a list of deciduous and evergreen trees.

Lewis Roesch, Fredonia, N. Y.—A Price List of 32 pages of nursery stock, with descriptions.

Robert C. Reeves Co., 187 Water street, New York.—Descriptive Catalogue of agricultural and horticultural implements, machinery, fertilizers, etc., 14 pages of which are devoted to garden, field and flower seeds—64 pages, printed in blue ink.

Rea Bros., Norwood, Mass., send out a 32 page Price List of hardy perennial shrubs, vines, etc.

L. Templin & Sons, Calla, Ohio.—Illustrated 48 page Catalogue of seeds, plants, etc. Cover white, gold and green.

James Vicks Sons, Rochester, N. Y.—The cover of this Catalogue is beautiful with several varieties of Clematis on the front, and artistic pansies on the back. The English custom has been adopted of omitting the colored plates and putting the expense into fine half-tone illustrations, with which the 124 pages are filled, showing the flowers and vegetables to best advantage. Sixteen pages are devoted to novelties and specialties.

Webbs Annual Catalogues, Wordsley, come across the ocean, delighting our heart in Old England. In the one devoted to farm seeds, manures, etc., we find half-tones almost as beautiful as steel engravings—landscapes that we linger over as works of art. The other Catalogue has a dignified, handsome cover, and is filled with beautiful illustrations of vegetables and flowers.

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HEADQUARTERS VICK'S VOLUNTEERS, March, 1900.

Dear Volunteers:—The army is growing, and we are thinking of forming companies in the different States, as sort of State Militia.

We think that eleven is a good number to begin with, a captain and ten privates.
Which State will send in the first company?

Any boy or girl can get up a company among his or her friends, and a captain can be elected. To each captain we will give a badge as a mark of his rank.

The Volunteers are being heard from all over the country, and we were gratified to learn that our Nature Studies are being used in more than one school as a reading lesson, and as a help to outdoor work.

How about forming a company in your school?

When filling out your application for membership be sure and give your street and number or your postoffice box. Several postmasters have written that they could not deliver the buttons because of this omission.



There are no dues. Our army is organized to awaken an interest among young people in what is going on about them, that their eyes may behold the treasures of nature. There is no money payment to be made, but simply a promise to write at least once during the year something of interest they have noticed in relation to animals, insects, birds, flowers, or plants. Not a composition upon some bird or insect, but a little statement of what you have noticed.

The questions of members will be carefully answered. If a personal answer is required, a self-addressed and stamped envelope should be enclosed. In fact we hope to make Vick's Volunteers an active, earnest organization, content in times of peace to learn how many unguessed forms of loveliness are all about us; or, at the call, make war upon the destroyers of our shade trees, our birds and our flowers.

All communications on this subject should be addressed to

Vick's Volunteers, 30 Triangle Building, Rochester, N. Y.

In making application to join Vick's Volunteers please fill out and sign the blank at the bottom of this page, cut it out and send as above stated.

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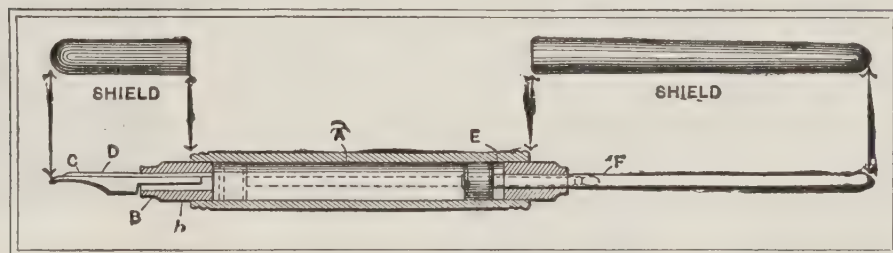
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St. Louis, Mo.

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Acushnet, Mass.

MARY A. P.

The splendid "Post Fountain Pen" received and has already proved to be a great convenience. Your MAGAZINE is splendid, and I hope to be able to send you some subscriptions soon.

St. Louis, Mo.

L. P. J.

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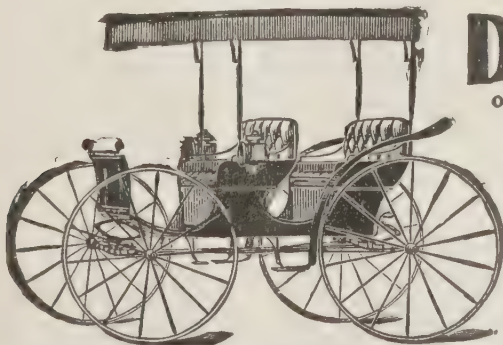
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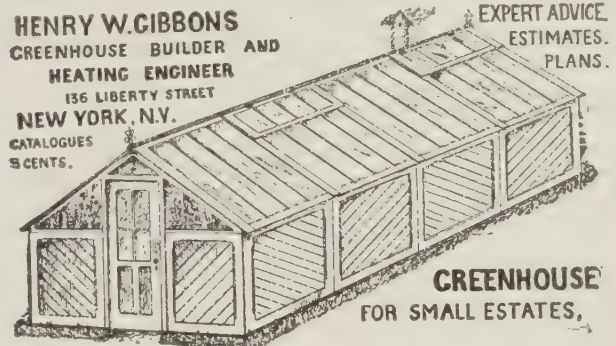
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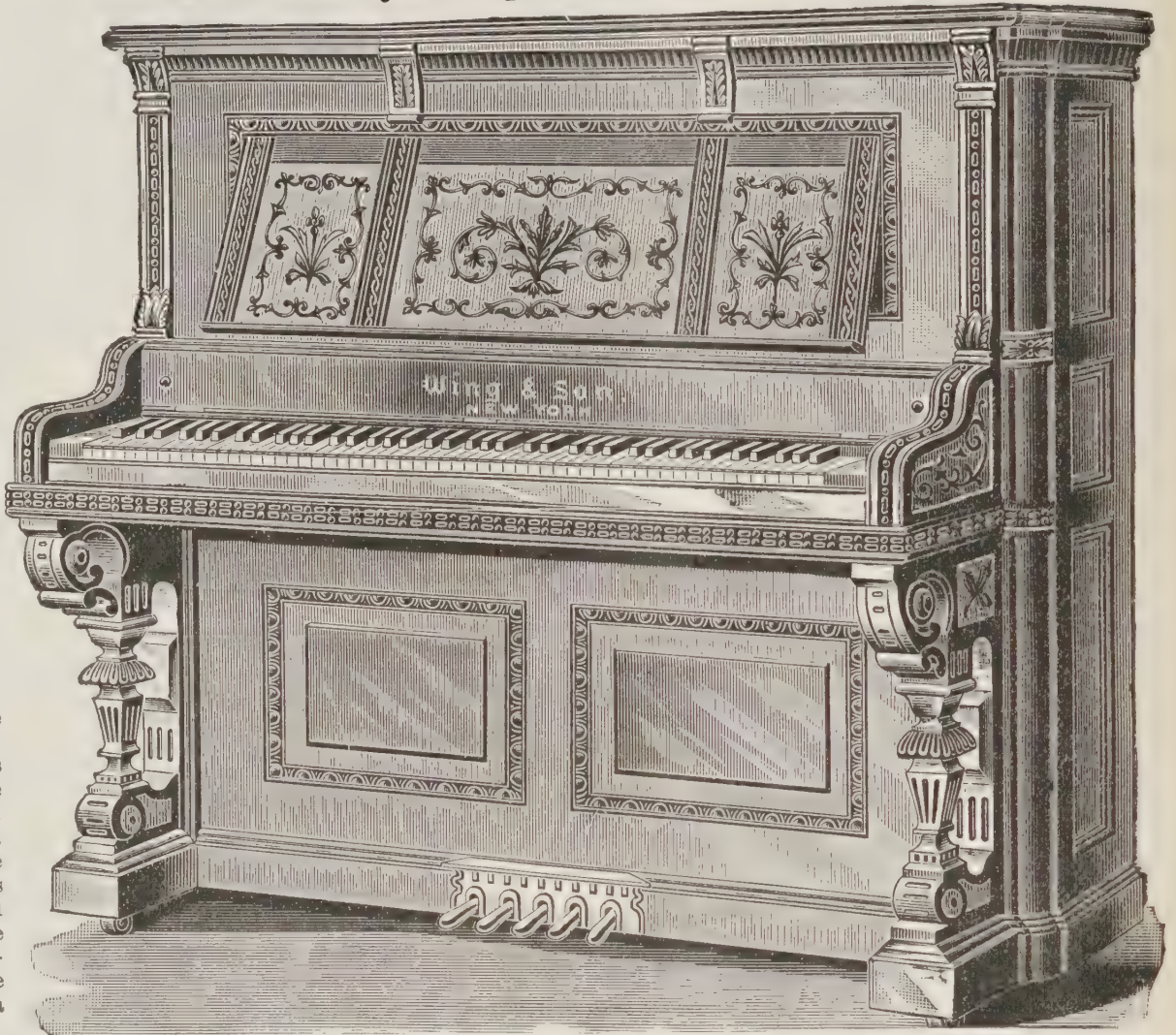
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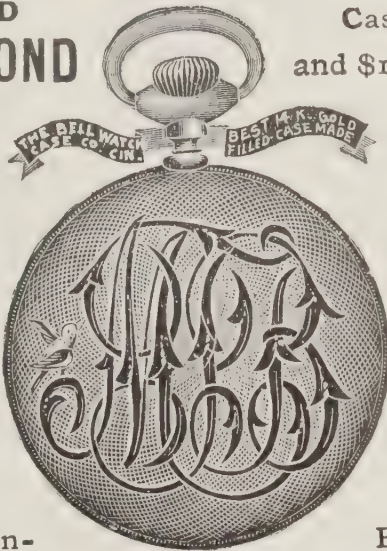
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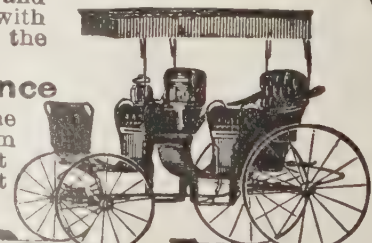
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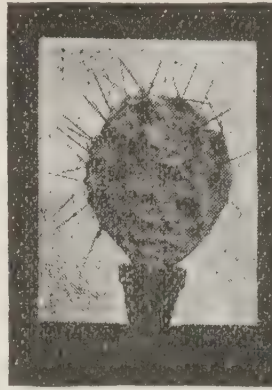
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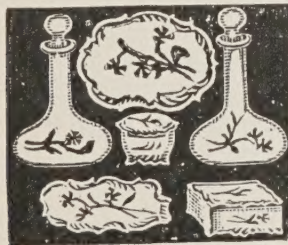
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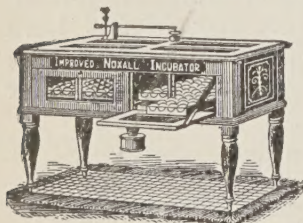
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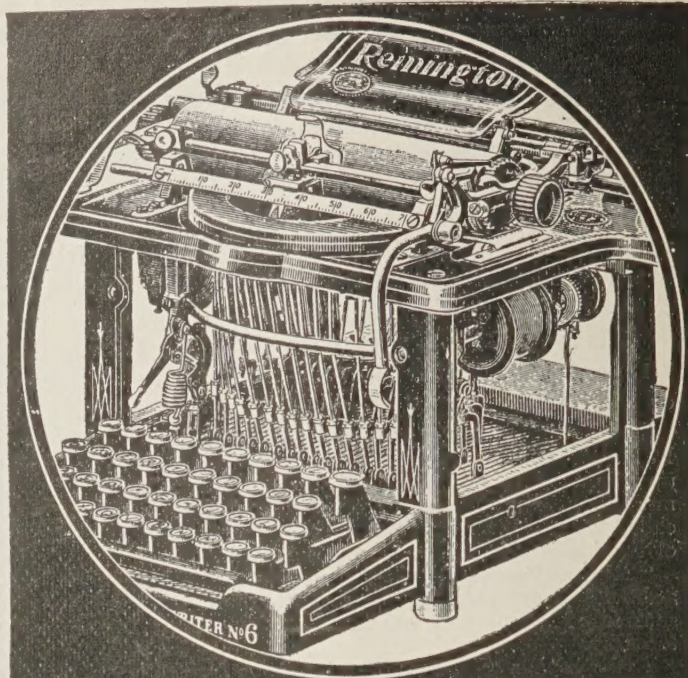


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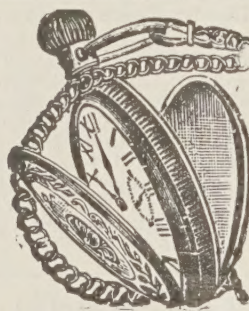
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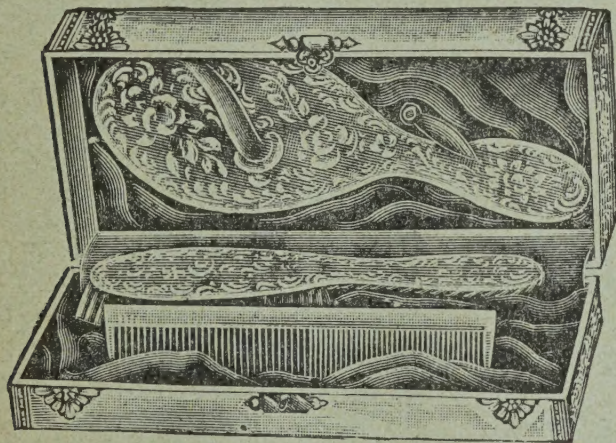
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